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ABSTRACT

This follow-up study, part of the National Study of Student Support Services compared the status of 2,900 disadvantaged students receiving student support services (SSS) since entering college 3 years earlier and 2,900 nonparticipating comparable students. Services offered varied among institutions but were all intended to help students stay in and graduate from college. Among key findings were the following: (1) SSS participation showed a small but positive and statistically significant effect on all three measures of student outcomes: grades, number of semester credits earned, and persistence in college; (2) average impact was small because most students received a modest amount of services; (3) size of impact depended on the degree of student participation in SSS; (4) estimated impact of SSS also varied based on which particular services were received; and (5)SSS effects were consistent across different subgroups of students. Among the supplementary services, peer tutoring received in the first year showed the most consistent positive impact on all three student outcomes. The report provides extensive detail on the study's methodology and findings. Appendices detail the sampling methodology, include the questionnaire used, provide literature review matrices, and analyze effects of nonrespondents on the study's findings. (Contains approximately 250 references.) (DB)

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February 1997

National Study of Student Support Services

Third-Year Longitudinal Study Results and Program Implementation Study Update

Appendices

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February 1997

National Study of Student Support Services

Third-Year Longitudinal Study Results and Program Implementation Study Update

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The study was performed under contract with Westat, Inc., and subcontract with SMB Economic Research. The project team included Margaret Cahalan, project director; Lana Muraskin, principal investigator; Bradford Chaney, senior analyst; David Wright, senior statistician; Jacqueline Severynse, statistician; Debbie Alexander, survey operations manager; Selma Chen, data preparation coordinator; Becky Rak, research assistant; Diane Ward, first-year study survey operations manager; Candi Hitchcock and Vicky Carlson, first-year study operations coordinators; Carin Celebuski, propensity analysis coordinator; Jacqueline Agufa, systems analyst; Allen Belsheim, systems analyst; and Ethel Sanniez, programmer. Ellen Tenenbaum, Selma Chen, and Patti Troppe provided writing support for parts of early drafts of the final report. Implementation study site visitors were Allison Henderson, Adrienne Von Glatz, Nancy Brigham, James Caruthers, Claryce Nelson, Elaine Carlson, Sheila Rosenblum, Carin Celebuski, Evelyn Marshall, Lana Muraskin, and Margaret Cahalan. Sylvie Warren was responsible for word processing, layout, and graphics of all the project reports and Carol Litman was the editor. Lisa Moore and others in Westat's Editorial Department provided additional word processing support for this final report. Lance Hodes provided Westat corporate support and guidance for the project.

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EXECUTIVE SUMMARY

BACKGROUND

The Student Support Services (SSS) program is designed to provide supplemental services to disadvantaged college students in order to help them to stay in and to graduate from college. The services that are offered vary from institution to institution, but most commonly include academic counseling and peer tutoring. The services may be academic, such as special courses or special sections within a course, or nonacademic, such as cultural enrichment activities. Initially funded in 1971, SSS is the second largest in terms of funding of the federal TRIO programs, all of which share the objective of helping disadvantaged students achieve success at the postsecondary level.

The study reports on the status of a group of about 2,900 SSS participants and 2,900 comparable nonparticipants 3 years after entering college. The primary focus of the study was to estimate the impact of the SSS program on participants in terms of the grades they received, the number of credits they earned, and their retention in college. Another focus was to collect descriptive information about how the SSS programs operate and about the characteristics of the students who participate. A followup study is underway to determine the status of the students 6 years after entering college, with the goal of estimating the impact of SSS on college degree attainment. Two earlier reports discussed the characteristics of the SSS participants and their experiences in their first year of college, and how the SSS program is implemented.

KEY FINDINGS ON IMPACT OF SUPPORT SERVICES

Three types of student outcomes over students' first 3 years in college were examined (grades in college, total number of credits earned, and retention in higher education), and the outcomes of the SSS participants were compared with the outcomes of comparable students who did not participate in SSS. Multivariate analyses were performed to statistically adjust for other factors that were related to student outcomes, including student demographic characteristics, the receipt of support services outside of SSS, student attitudes, and differing levels of participation in SSS.

- **SSS showed a small but positive and statistically significant effect for all three measures of student outcomes.** The greatest impact generally occurred during the first year, when the most SSS services were received, but **some SSS services received in the first year showed persisting impacts in later years**, and some services received in later years (not necessarily through SSS) also showed positive and statistically significant impacts.

  - **Students' college GPAs were increased** by a mean of 0.15 in the first year, resulting in a mean GPA of 2.29 on a four-point scale (e.g., "A"=4.0 and "C+"=2.3). In the second year, the mean increase was 0.11 (to 2.44), and in the first 3 years combined the increase was also 0.11 (to 2.59).

  - **The number of semester credits earned was increased** by a mean of 1.25 (to a total of 20.91 credits) in the first year, 0.79 (to 20.62) in the second year, 0.71 (to 20.58) in the third year, and 2.25 (to 73.38) in the first 3 years combined.

  - **Retention was increased** at the same institution by 7 percentage points (i.e., from 60 percent to 67 percent) for retention to the second year, and by 9 percentage points (i.e., from 40 percent to 49 percent) for retention to the third year. Retention to the third year at any higher education institution was increased by 3 percentage points (i.e., from 74 percent to 77 percent).

- **The average impact was small because most students received only a modest amount of services.** Nine percent of students had only one service contact in their freshman year. The mean number of hours of services received in the first year was 32, and the median was 14. The mean for nonfreshmen was 15 hours, and the median was 6.

- **The size of the impact depended on the degree to which students participated in SSS, with greater levels of participation resulting in a greater impact.**

- **The estimated impact of SSS also varied based on which particular services each student received, and the structure of the SSS projects.** The varying effects of the services are summarized in the table and bullets below.

Estimated improvement in student outcomes among students receiving particular SSS services in the first year

SSS service	Increase in GPA				Increase in credits earned				Increase in percentage retained		
	Year 1	Year 2	Year 3	Cumulative	Year 1	Year 2	Year 3	Cumulative	Year 2 (same institution)	Year 3 (same institution)	Year 3 (any institution)
Peer tutoring	0.12	0.08	--	0.06	1.47	1.15	0.83	3.10	3	6	4
Cultural events	0.16	--	--	--	3.21	2.28	2.65	6.57	--	--	--
Workshops	--	--	--	--	0.89	--	--	--	5	6	--
Instructional courses	--	--	--	--	--	--	--	--	5	7	--
Blended programs	--	--	--	--	--	--	--	--	7	7	4
Home-based programs	0.14	0.13	--	0.14	--	--	--	--	--	--	--

-- = Not statistically significant.

- *Peer tutoring* received in the first year showed the most consistent impact, with positive and statistically significant effects for each of the three student outcomes and for each of the first 3 years (except for the third-year GPA).

- *Visits sponsored by SSS to cultural events* in the first year were associated with increased GPAs in the first year, and an increased number of credits earned in all 3 years.

- *SSS workshops* in the first year had a positive impact on the number of credits earned in the first year and on retention to the second and third years at the same institution.

- *Instructional courses that were exclusively for SSS students* were associated with increased retention to the second and third years at the same institution.

- *Programs that provided a home base on campus* that served the "whole student" were associated with increased GPAs in the first and second years, and in the 3-year cumulative GPAs.

- *Programs that blended SSS and non-SSS services* had increased rates of retention at both the same institution and at any institution.

- *Findings including services received outside of SSS reinforced the value of supplemental services.* Tutoring and cultural events both showed positive and statistically significant effects when received in the first year outside of SSS. Further, tutoring received in the second year and cultural events in the second and third years were associated with improved student outcomes (it is not known whether the services were received through SSS or other sources). Two other supplemental services—counseling and services for the handicapped—showed positive and statistically significant effects in some situations.

- **The effects of SSS generally appeared consistent across different subgroups of students.** To the extent that some subgroups showed different effects than other subgroups, those differences appear attributable to differences in participation levels rather than to differing effects of individual services. In general, students who were more disadvantaged tended to participate more and thus experienced greater effects through SSS participation.

OTHER FINDINGS ON THE SSS PROGRAM

- **SSS projects appeared successful in targeting those students who were most disadvantaged from among the overall student population.** In comparison with the national averages for college freshmen, SSS participants tended to be older, to be members of a minority group, to have had lower prior academic achievement, and to have dependent children. Minority SSS participants composed 54 percent of the SSS student population, whereas minority populations represented only 25 percent of the total undergraduate population.

- **SSS students received higher levels of supplemental services than did comparison students, including services offered outside of SSS.** This suggests that SSS increased the amount of services obtained by students beyond what they would have received otherwise. This difference in service use declined substantially after the freshman year. For example, 63 percent of these students received tutoring at some point during their first 3 years compared with 36 percent of comparison group members. In the first term, 46 percent of SSS participants reported use of tutoring compared with 20 percent of comparisons. By the spring 1994 term, 11 percent of SSS and 8 percent of comparisons reported use of tutoring. There was less difference between the SSS participants and the comparison group in levels of counseling use.

- **Although SSS has increased greatly in size, when adjusted for inflation, the funding per program and per participant is less than in 1970.** SSS program funding went from its initial funding level of $10 million in 1970 to $143.5 million in 1995. Over the same time period, the number of projects funded grew from 121 to 706, and the total number of students served by the SSS program from 30,000 to 165,561. The number of students served peaked at 181,368 in 1981. In constant 1990 dollars the average grant size declined from $278,393 in 1970 to $174,365 in 1995. The level of per-participant funding (in constant 1990 dollars) was highest in 1970 at $1,123, declined to $507 in 1981, and reached $744 in 1995. In 1995 current dollars, funding per participant was $867.

- **SSS programs are concentrated at particular types of institutions.** In 1994, approximately 24 percent of all higher education institutions serving freshmen had SSS projects. Because SSS projects tended to be located in larger schools, about 34 percent of all freshmen attended institutions having SSS projects. SSS projects tended to be concentrated in 4-year institutions, public institutions, institutions enrolling more than 20,000 students, and institutions with 50 percent or more minority enrollment. Over 40 percent of doctoral institutions compared with 15 percent of baccalaureate institutions and 22 percent of 2-year institutions had SSS programs. Relatively few highly selective institutions (19 percent) had SSS projects.

METHODOLOGY

- From a total of 47 higher education institutions, some with SSS and some without, 2,900 college freshmen who were SSS participants and a statistically matched comparison group of 2,900 freshmen who were not participants were selected and tracked over three years. During that time, the students were surveyed in the first and third years to determine their attitudes, their characteristics, and their progress in college. Service records were maintained to monitor students' participation in SSS during the freshman year, and college transcripts were collected to monitor their academic progress over 3 years. Additional information about SSS programs and other supplemental services was collected through a survey of 200 SSS projects and site visits to 50 higher education institutions (30 with SSS projects, and 20 without). The response rates were: 93 percent for the survey of 200 SSS projects, 86 percent for each of the two surveys of students, 86 percent for the collection of service records of SSS participants, 97 percent for student transcripts at the initial 47 institutions, and 92 percent at the 814 additional institutions that the students attended during the 3 years.

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1. INTRODUCTION

Open and widespread access to higher education is one of the distinguishing characteristics, and one of the greatest strengths, of the United States. In an effort to improve success in higher education for disadvantaged students, in 1965 Congress initiated the Special Programs for Disadvantaged Students, which would become known as the TRIO program. The third of the TRIO programs initiated, Student Support Services (SSS) was begun in 1970.

This is the final report for the National Study of Student Support Services, which began in 1991-92. Two Interim Reports presenting results from the earlier parts of the study were completed in 1994. Those reports focused on the implementation study, a data collection effort to obtain descriptive information about the program and its participants. This final volume focuses on the results of the longitudinal study of college outcomes for SSS participants in which those students were followed for the 3 years after they entered college as freshmen. This report also incorporates and updates selected summary findings of the earlier implementation study reports. A second phase of the longitudinal study will follow the same students through the end of their sixth year (1996-97) after their initial participation in the Student Support Services program.

STUDY BACKGROUND

Student Support Services is one of six federally funded grant programs administered by the Department of Education as part of the Special Programs for Disadvantaged Students, collectively known as the TRIO programs in the Higher Education Act (HEA). The first two TRIO programs were Upward Bound, begun in 1965, and Talent Search, begun in 1966. The other TRIO programs are the Educational Opportunity Centers (EOC), begun in 1974, Staff Training, begun in 1978, and the McNair Fellowships, begun in 1989.

All six programs are designed to help economically disadvantaged and first-generation college students achieve success at the postsecondary level—by facilitating high school completion, entry into and completion of postsecondary education, and entry into graduate school. They are intended to complement federal student aid programs that address the financial needs of disadvantaged students by providing a wide range of supplemental services. Services may include academic enrichment, financial aid counseling, referrals, and the provision of cultural enrichment.

Student Support Services and other TRIO programs, combined with federal student financial aid programs, *reflect a national commitment to provide services for disadvantaged students and to foster a wider climate of equal educational opportunity in higher education.* Since the mid-1960s, Congress has recognized that financial aid alone will not ensure equal educational opportunity to disadvantaged students. For this reason, they have sponsored the development of corresponding supplemental services to prepare disadvantaged students for college and to enable them to succeed once there. In addition, they have sponsored the development of institutional policies designed to serve a more diverse population of students. The TRIO programs have been a major part of the federal effort. In this regard TRIO programs have had the role of not only providing direct services, but also of serving as models for fostering the development of other student support activities.

The Planning and Evaluation Service of the U.S. Department of Education (ED) has been directed by Congress to evaluate the TRIO programs. The purpose of the evaluation is to "examine the effectiveness of current programs and to identify program improvements" (P.L. 101-166). In response to this mandate, the Department of Education has designed a multipart evaluation that includes studies of several TRIO programs. The National Study of Student Support Services is one component of this evaluation.

STUDENT SUPPORT SERVICES OVERVIEW

The SSS program awards grants to institutions of higher education to provide supplemental services to eligible students (Exhibit 1-1 presents an excerpt from the federal legislation). Currently, roughly 25 percent of the 4-year and 2-year colleges and universities serving freshmen in the United States have SSS grants. As stated in the 1992 reauthorization legislation, the purpose of Student Support Services is

1. To increase college retention and graduation rates for eligible students;

2. To increase the transfer rates of eligible students from 2-year to 4-year institutions; and

3. To foster an institutional climate supportive of success of low-income and first-generation college students and individuals with disabilities.

Two-thirds of the students served by SSS must be low-income (defined as 150 percent of the poverty level) and first-generation college students or students with physical handicaps. The other third must be low-income or first-generation college students. One-third of the physically handicapped students must also be low-income students. In 1995-96 grants totaling about $143.5 million enabled about 700 institutions to serve approximately 165,600 participants, making the federal cost per participant $848. In 1995-96 the average grant was $203,300. Services may include counseling, tutoring, workshops, laboratories, cultural events, special services to handicapped students, and instructional courses.

Exhibit 1-1
U.S. Legislation Authorizing Student Support Services

SEC. 402D. STUDENT SUPPORT SERVICES

(a) Program Authority -- The Secretary shall carry out a program to be known as student support services which shall be designed --

(1) to increase college retention and graduation rates for eligible students;
(2) to increase the transfer rates of eligible students from 2-year to 4-year institutions; and
(3) to foster an institutional climate supportive of the success of low-income and first-generation college students and individuals with disabilities.

(b) Permissible Services -- A student support services project assisted under this chapter may provide services such as --

(1) instruction in reading, writing, study skills, mathematics, and other subjects necessary for success beyond secondary school;
(2) personal counseling;
(3) academic advice and assistance in course selection;
(4) tutorial services and counseling and peer counseling;
(5) exposure to cultural events and academic programs not usually available to disadvantaged students;
(6) activities designed to acquaint students participating in the project with the range of career options available to them;
(7) activities designed to assist students participating in the project in securing admission and financial assistance for enrollment in graduate and professional programs;
(8) activities designed to assist students currently enrolled in 2-year institutions in securing admission and financial assistance for enrollment in a 4-year program of postsecondary education;

(continued on next page)

Exhibit 1-1
U.S. Legislation Authorizing Student Support Services (continued)

(9) mentoring programs involving faculty or upper-class students, or a combination thereof; and

(10) programs and activities as described in paragraphs (1) through (9) which are specially designed for students of limited English proficiency.

(c) Requirements for Approval of Applications -- In approving applications for student support services projects under this chapter for any fiscal year, the Secretary shall --

(1) require an assurance that not less than two-thirds of the persons participating in the project proposed to be carried out under any application --

(A) be individuals with disabilities; or
(B) be low-income individuals who are first-generation college students;

(2) require an assurance that the remaining students participating in the project proposed to be carried out under any application either be low-income individuals, first-generation college students, or individuals with disabilities;

(3) require an assurance that not less than one-third of the individuals with disabilities participating in the project be low-income individuals;

(4) require that there be a determination by the institution, with respect to each participant in such project, that the participant has a need for academic support in order to pursue successfully a program of education beyond secondary school;

(5) require that such participants be enrolled or accepted for enrollment at the institution which is the recipient of the grant or contract; and

(6) require an assurance from the institution which is the recipient of the grant or contract that each student enrolled in the project will be offered sufficient financial assistance to meet that student's full financial need.

(20 U.S.C. 1070a-14) Enacted October 3, 1980, P.L. 95-374, sec. 405, 94 Stat. 1410; amended October 17, 1986, P.L. 99-498, sec. 401(a), 100 Stat. 1339; amended July 23, 1992, P.L. 102-325, sec. 402(a)(4), 106 Stat. 488.

THE NATIONAL STUDY DESIGN

The National Study of SSS was designed to answer the following questions:

1. What is the extent of the need for support services aimed at helping students remain in school? Is SSS serving the most important needs of its intended population? How do the services provided with SSS grants differ from those offered through other programs designed to assist disadvantaged students complete college?

2. What is the range and mix of support services of projects funded by the SSS program?

3. Who receives such services currently, and what are the types and amounts of service they receive?

4. What is the impact of federal support on service availability at the institutions?

5. What are the effects of obtaining support services on a student's college persistence and performance?

6. What services are most effective in meeting project goals? Are certain approaches more effective than others, and how can current programs be improved? How can programs be designed and managed more effectively?

To address these questions the Department of Education designed a multi-part evaluation study with two major components:

- A descriptive study of program implementation and program characteristics; and
- A longitudinal study of the college experiences and outcomes of a sample of SSS participants and an equal number of comparison students who did not receive SSS services.

Exhibit 1-2 is a summary of the major components of the study and the major data collected and/or analyzed. We briefly review each component below.

THE IMPLEMENTATION STUDY

The study of program implementation (the focus of Interim Reports) collected and/or analyzed information from several sources.

- A 1991-92 survey of a nationally representative, stratified random sample of 200 SSS projects funded in both 1987 and 1990;
- Site visits to 50 higher education institutions, 30 with SSS projects and 20 that did not have SSS grants. The 30 SSS sites were randomly subsampled from within the 200 included in the survey of SSS projects. The 20 non-SSS sites were selected to match the 30 SSS sites. Institutions were matched by enrollment size, geographic region, selectivity, percent Pell Grant recipients, institution type (2-year, 4-year), and institution control (public, private). The 4-day site visits took place between October and May of 1991-92.

Exhibit 1-2
Components of the National Study of Student Support Services (SSS)

Component	Description/sample	Dates/response rates	Results are reported in
Implementation Study			
Case studies of institutions of higher education	50 institutions (30 with SSS and 20 that did not have SSS project).	October 1991 - May 1992	Interim Report, Volume 1, Chapters 7-9
Project Directors Survey	A nationally representative random sample of 200 SSS projects. Covers characteristics of projects/issues.	1991-92 academic year, 93 percent response	Interim Report, Volume 1, Chapter 6
SSS Performance Reports analysis	Analyses of aggregated data from 700 projects completing Performance Reports. Covers demographics of participants and types of services.	1988-89 data 1994 data	Interim Report, Volume 1, Chapters 4 and 5 Final Report, Chapter 4
Secondary data analyses:			
Integrated Postsecondary Education Data System (IPEDS) data	Compares characteristics of SSS institutions with universe of institutions serving freshmen.	1989-90, 1994	Interim Report, Volume 1, Chapter 5 Final Report, Chapter 4
Higher Education Survey (HES) on Retention	Nationally representative sample survey on retention incidence and issues.	1989-90, 90% response	Interim Report, Volume 1, Chapter 5
Longitudinal Study			
Participant lists	Lists of all SSS participants over August - March	1991-92 28 of 30 sites	Description of sampling procedure in Appendix A of Final Report
Freshman files	Detailed files from student records on all freshmen in each SSS and non-SSS study site used for comparison group selection and analyses of outcomes. Propensity analysis used to select comparison group.	1991-92 academic year 28 of 30 SSS sites 19 of 20 non-SSS sites	File layout in Appendix B of Final Report Propensity procedure discussed in Appendix A of Final Report

Exhibit 1-2
Components of the National Study of Student Support Services (SSS) (continued)

Component	Description/sample	Dates/response rates	Results are reported in
First-year baseline student survey of freshmen	Background, self-concept, goals, and initial college experience information on SSS and non-SSS participants. About 2,900 SSS and 2,900 non-SSS study participants.	October to August 1991-92 86 percent response rate	Interim Report, Volume 2, Chapter 2 Final Report, Chapter 5 and Chapters 6-8
Service records of participants	Detailed records of each service contact. Covers type of service, length in minutes, and number of other students involved in service contact.	28 sites monthly reports on freshman and nonfreshman participants. 86 percent freshman response rate (only freshmen used in longitudinal analyses)	Descriptive information in Interim Report, Volume 2, Chapter 3, and Final Report, Chapter 4. Used in outcomes analysis in Chapters 6-8. Appendix B contains form used.
Followup survey	College and work experiences, services received, evaluation of services, and current plans/goals. About 2,900 SSS and 2,900 non-SSS study participants.	Data collection June to February of 1994-95 Reference date 1993-94 enrollment 86 percent response rate	Final Report, Chapter 5 (descriptive), Chapters 6-8 (outcomes analysis)
Student transcripts	Transcripts from all institutions attended for 2,900 SSS and 2,900 non-SSS study participants: 47 initial institutions and 814 additional institutions.	1991-92 1992-93 1993-94 97 percent from initial 47 institutions 92% from additional institutions	Interim Report, Volume 2, Chapter 5 (1991-92 only) Final Report, Chapter 5 (descriptive) Chapters 6-8 (outcomes analysis)

- Basic statistics on project history and funding levels obtained from the Department of Education, Division of Student Services (the federal program office), and from the National Council of Educational Opportunity Associations (NCEOA).

- Project-reported data from the annual performance reports submitted by each project on students served and types of services.

- Institutional data from the Integrated Postsecondary Data System (IPEDS) and from a nationally representative Higher Education Survey (HES) study of institutions' retention practices.

THE LONGITUDINAL STUDY

The longitudinal study of participants (the focus of this report) was designed to examine the educational effects of the federally supported SSS projects on college success. The outcome measures include grade point average (GPA), persistence in college, and credits earned. The study tracks a sample of about 2,900 SSS freshmen selected from SSS participant lists in 1991-92 and 2,900 non-SSS freshmen selected from freshman files obtained from the institutions. An SSS study participant was defined as freshman student who received at least one service contact from SSS in the study reference period. To select a comparison group, files of all first-time freshmen were obtained from the institutions' institutional research offices or some other institutional source (the freshman file layout is included in appendix B). Using logistic regression, project participation was modeled. Utilizing site-specific models, those students having the highest propensity to participate in SSS, but who were not SSS participants, were selected for the comparison group. Comparisons were selected from both the 28 participating SSS sites and the 19 participating non-SSS sites (see appendix A and chapter 6 for more detailed discussion of comparison group selection).

Data collected for the longitudinal study included the following:

- **Student information freshman files.** The 47 participating institutions provided files containing selected student characteristics of all their first-time freshmen. Appendix B contains a copy of the file layout and information requested from each site. The amount of information obtained varied substantially by site, with more information available at the 4-year and doctoral institutions than at the 2-year institutions. The files made possible the selection of the comparison group and supplemented student background information obtained from the student surveys.

- **Baseline student survey**. This survey included items on student background including age, sex, race/ethnicity, marital status, dependent children, handicapping conditions, high school preparation for college, other federal program participation, standardized test scores, prior higher education experience, parental characteristics, and family income. Information was also collected on the initial college experience including residence, intensity of involvement, financial aid, use of SSS and SSS-like services, self-reported grades, integration to college, satisfaction with college, career expectations, and self-concept. Data were collected from 90 percent of the SSS participants and 83 percent of the comparisons. The overall response rate was 86 percent.

- **Participant service records.** Each of the 28 participating indepth SSS study sites was asked to keep detailed service records of each service contact with sampled students. Records were kept for 2,632 freshmen and 2,109 nonfreshmen from August to April of the 1991-92 academic year. Only the freshmen were included in the longitudinal study. Those projects that anticipated serving fewer than 135 freshmen were asked to keep records on all freshmen, and those anticipating serving more freshmen randomly selected students. Most colleges (21 of the 28) kept records on all freshmen. Records were kept on types of service, length in minutes, date, and number of students in service. The response rate for the service record component was 86 percent.

- **Third-year student followup survey.** This survey was administered by mail with telephone followup over the period of June 1994 to February 1995. The reference point was 1993-94 enrollment. About one-third of the surveys were completed by mail and about two-thirds by telephone. The response rate was 86 percent. Data items included college attendance history, demographic information update, detailed service history, evaluation of services, employment status, educational plans, college experience, and attitudes and perceptions of study participants. Appendix D contains a summary of response rates for the study components and discussion of nonresponse issues.

- **Student transcripts.** Transcripts were collected at the end of the first year (summer of 1992) and at the end of the third year (summer-fall of 1994) from the original 47 sites. Following completion of the third-year followup survey, we also collected transcripts from any additional colleges the students listed on the survey form. About 30 percent of the sampled students indicated they had attended additional colleges, and in all they listed just over 800 additional schools. The response rate for the initial transcripts was 97 percent, and for the additional transcripts, 92 percent. Appendix B contains a copy of the transcript keying/coding directions.

LIMITATIONS OF THE DATA

The data presented in this report are based on about 5,865 students sampled from 47 institutions (28 SSS sites and 19 non-SSS sites in 1991-92). While this is a large number of sites and students for an indepth evaluation study, some caution should be taken in generalizing to the national population of SSS students. As indicated above, response rates range from about 86 percent for the student surveys to rates over 95 percent for the transcripts. While these rates are high, and much higher than any previous SSS evaluations, student-level nonresponse has some impact on the results. Analysis of the characteristics of survey nonrespondents using the transcript and service record data indicated that those who did not respond to the survey were somewhat more disadvantaged and, among SSS participants, had less involvement with the SSS project (see appendix D for further discussion of nonresponse issues).

STRUCTURE AND CONTENT OF THE REPORT

This report focuses on the longitudinal study outcomes; however, it also presents summary information from the implementation study and updates statistical information contained in the interim study reports on the need for the program and the statistical overview of the SSS program.

- **Chapter 2** provides information on the need for student support services, focusing on the economic and educational context for the program. The chapter documents inequities in access to, and completion of, higher education by socioeconomic status and provides information on the relationship between education and income.

- **Chapter 3** reviews literature on student retention and support services and considers the lessons of that body of work for this evaluation. Several theoretical frameworks for studying retention are provided. Results of previous SSS evaluations are discussed.

- **Chapter 4** provides a statistical overview of the Student Support Services program from its inception to the current period, as well as a description of the program regulations and their changes over time. A summary is also provided of aggregate information from the 1994 performance reports. Utilizing IPEDS data, characteristics of SSS projects are compared with the total universe of higher education institutions serving freshmen. Summary information from the 1991-92 service records analysis is also included.

- **Chapter 5** utilizes information from the two student surveys (baseline first-year and third-year followup) and the student transcripts covering all 3 years to present descriptive information on the SSS participants at the first- and third-year points. Bivariate comparisons are made between those enrolled and those not enrolled in the third year.

- **Chapter 6** introduces the outcomes analysis by providing detailed information on the design and discussing methodological issues of the analysis.

- **Chapter 7** presents results of the regression-based analysis of outcomes for the 3 years of followup, looking at student outcomes for GPA, retention in college, and credits earned. Ordinary least squares, logistic, and structural equation modeling are used. Information is used from the baseline survey, student transcripts, service records, and followup surveys.

- **Chapter 8** looks at special topics with regard to the outcomes analysis, including effects of services received beyond the first year and the effects of SSS on different subgroups of students.

- **Chapter 9** focuses on the issue of performance measurement for the SSS program and projects, providing a discussion of the issues involved in revising the current performance reporting.

- **Chapter 10** is a discussion of the implications of the findings for the program and for future evaluation work.

- **Bibliography.** A bibliography is provided at the end of this volume.

- **Appendices A to F.** Appendix A provides a copy of the sampling methodology. Appendix B includes copies of the data collection/coding instruments for the baseline survey, service records, freshman files, transcript coding, and followup survey. Appendix C provides matrix summaries of relevant literature. Appendix D includes information on response rates. Appendix E includes selected additional tables from the interim report, and appendix F contains a copy of the SSS performance reporting form that was in use at the time of this study.

2. THE NEED FOR SERVICES: POVERTY, ECONOMIC INEQUALITY, AND EDUCATIONAL ATTAINMENT: 1966-94

This chapter discusses the economic and higher educational environments of the past three decades as they relate to the federal Student Support Services program. SSS was designed to provide individuals from economically, culturally, and educationally disadvantaged backgrounds with support services enabling them to successfully complete a postsecondary degree program. The need for this program and other TRIO programs continues to exist today as evidenced by several indicators, including (1) poverty levels, (2) economic inequality, (3) educational attainment and its relationship to income, (4) postsecondary enrollment rates, and (5) college retention. Trends in these indicators, such as increasing poverty rates and a strong relationship between education and income, suggest there is a continuing, perhaps increasing, need to provide services that foster equal educational opportunity for all students.

The first section of this chapter examines income and poverty trends. This is followed by a discussion of the relationship between education and income. The third and fourth parts of this chapter address a variety of issues impacting higher education including high school graduation rates, postsecondary enrollment rates, family/student income levels, degree completions, and retention rates. The chapter concludes with a discussion of the changes in higher education impacting the SSS program.

HIGHLIGHTS

- Over the past three decades, the proportion of economically disadvantaged families has grown, decreasing the percentage of U.S. families able to finance higher education.
- In 1993, 31 percent of children 6 to 17 years old were in families earning below 150 percent of the poverty level. For black and Hispanic children, the rates were 58 and 57 percent, respectively.
- Over 1.1 million 17-year-olds met the SSS low-income eligibility requirement (family income less than 150 percent of the poverty level) in 1993.
- Income disparity continued to grow as the top 20 percent of the population held an equal share of aggregate income as the middle 60 percent of the population in 1993. The bottom

20 percent of the population saw its share of aggregate income decline from 4.2 percent in 1968 to 3.6 percent in 1993.

- The relationship between higher levels of educational attainment and higher income levels has become stronger. On average, individuals holding bachelor's degrees earned 90 percent more than individuals with high school diplomas only.
- Overall high school graduation rates have continued to increase slowly, with the largest increases in completion rates being experienced by blacks.
- In 1994, the postsecondary enrollment rate for high school graduates was 87.8 percent for students with family incomes over $67,881, while the rate was only 58.2 percent for students with family incomes under $22,033.
- Enrollment was also influenced by the educational attainment of the householder. Students were more likely to complete high school and enroll in college if the householder had completed 4 or more years of college.
- Completion and continuous enrollment rates have continued to be highest for high-income students.
- From 1976-77 to 1992-93, bachelor's degree attainment increased for all racial/ethnic groups except white, non-Hispanics. White, non-Hispanics and Asians/Pacific Islanders were, however, the only racial/ethnic groups that earned a percentage of degrees equal to or greater than their overall representation in the total population in 1992-93.
- In 1994, students from families whose income was in the top quartile were almost 10 times more likely to complete a college degree than students from families whose income was in the bottom quartile. In 1970, students from the top income quartile were only 6 times more likely to complete a college degree.
- In 1990, approximately 48 percent of all bachelor's degree recipients were first-generation college students.
- The percentage of first-time entering freshmen who graduate from the institutions they entered within 6 years is over 50 percent, and is significantly lower for traditionally underrepresented groups. For example, at National Collegiate Athletic Association (NCAA) Division I schools, the average graduation rates were 56 percent for the total and 36 percent for blacks, 34 percent for American Indians, and 44 percent for Hispanics.

- In 1994, a higher percentage of bachelor's degree recipients found employment than did individuals holding a high school diploma only.
- Educational support of academically disadvantaged students has increased, and in many colleges has become institutionalized, with 74 percent of all postsecondary institutions offering at least one remedial course.
- Enrollment in 2-year institutions has increased dramatically over the period since TRIO began.

INCOME AND POVERTY TRENDS

The first section of this chapter discusses changes in the poverty levels from the 1960s through 1993. An examination of the data shows that poverty levels for both blacks and Hispanics have risen over the past three decades. This is followed by a discussion of the aggregate income distribution and the growing number of families and children living at or below the poverty level.

National poverty levels: 1966-93. One year following the passage of the Higher Education Act of 1965,[1] Upward Bound became the first active TRIO program. This program was implemented at a time when 13.1 percent of all U.S. families had incomes below the poverty level and 17.4 percent of children under 18 years old lived in poverty (figure 2-1a). Blacks and Hispanics faced more daunting poverty rates, with 40.9 percent of black families and 50.6 percent of black children under age 18 in households having incomes below the poverty level (figure 2-1b), and 21.5 percent of Hispanic families and 27.8 percent of Hispanic children under age 18 (figure 2-1c).

This situation has not improved in the ensuing decades. In 1993, the national poverty rates were higher than in 1965, reaching 13.6 percent for all families and 22.0 percent for all children under 18 (figure 2-1a). While there was a slight decline in these rates for black families and for black children under 18 (figure 2-1b), the poverty rates rose for Hispanic families and children under 18 years (figure 2-1c).[2]

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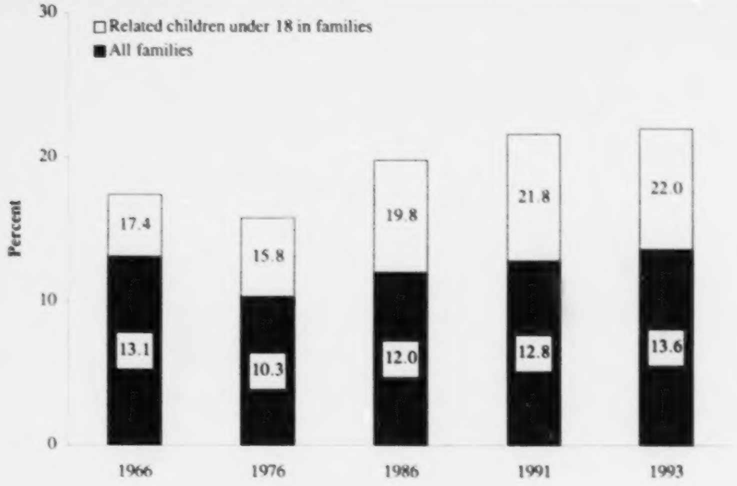
[1] The Higher Education Act of 1965 initiated the federal student financial aid program.

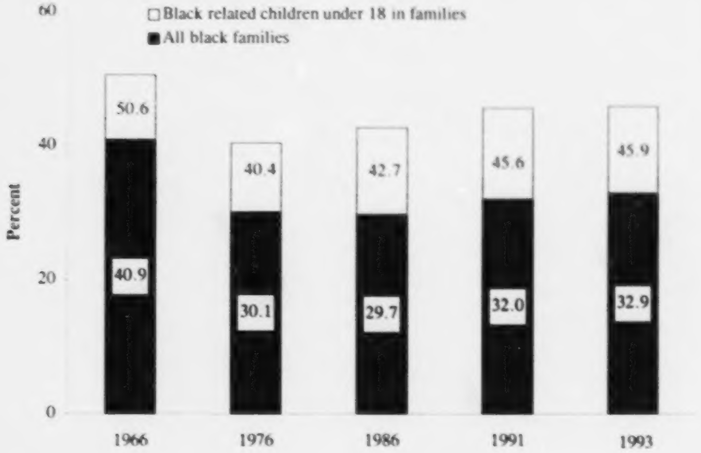
[2] This increase may be due, in part, to increased Hispanic immigration to the United States.

Figure 2-1a
Percent of all U.S. families and children below poverty level: Selected years, 1966-93



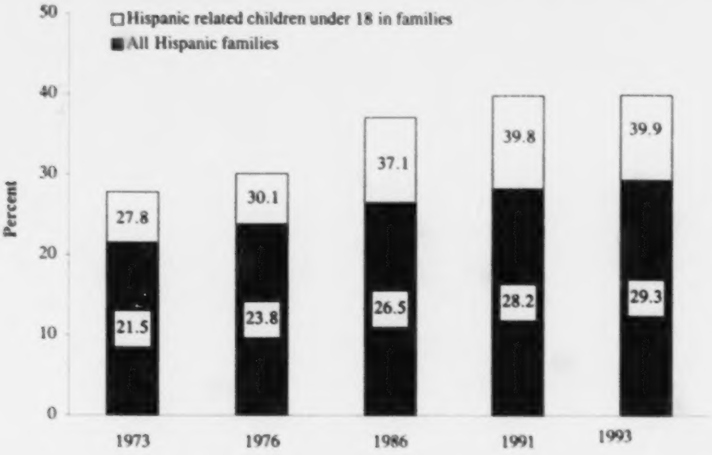
SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Income, Poverty, and Valuation of Noncash Benefits: 1993," Series P60, No. 188, 1995, table C.

Figure 2-1b
Percent of black families and children below poverty level: Selected years, 1966-93



SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Income, Poverty, and Valuation of Noncash Benefits: 1993," Series P60, No. 188, 1995, tables D-4 and D-5.

Figure 2-1c
Percent of Hispanic families and children below poverty level: Selected years, 1973-93



NOTE: Separate data on poverty of Hispanics first became available for 1973. Persons of Hispanic origin may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Income, Poverty, and Valuation of Noncash Benefits: 1993," Series P60, No. 188, 1995, tables D-4 and D-5.

Under 150 percent of the poverty level. One of the SSS eligibility requirements is that at least two-thirds of the participants be low-income individuals who are first-generation college students or individuals with disabilities.[3,4] For dependent students participating in the 1992-93 program year, this included any student coming from a household where the family income was below $20,925.[5] National figures indicate that 31 percent of children aged 6 to 17 were in families earning below 150 percent of the poverty level in 1993 (table 2-1). Among black and Hispanic children, well over half (57.8 percent and 57.4 percent, respectively) met this SSS eligibility criterion (table 2-1 and figure 2-2). This was a small increase from the 1991 levels of 56.7 percent of black and 54.7 percent of Hispanic children.[6] Overall 1.1 million 17-year-olds met the 150 percent requirement in 1993 (figure 2-3), including 339,100 black and 268,800 Hispanic 17-year-olds. This was almost 100,000 more 17-year-olds than 2 years earlier.[7]

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[3] A low-income individual is defined as an individual from a family whose taxable income for the preceding year did not exceed 150 percent of an amount equal to the poverty level as established by the U.S. Bureau of the Census.

[4] The remaining participants must either be low-income individuals, first-generation college students, or disabled. One-third of the disabled students must also be low income.

[5] Income level was cited for a family of four living within the contiguous United States, the District of Columbia, and outlying areas. Reported by U.S. Department of Health and Human Services. (1992). *Federal Register* 57(31):5455-5457. As published in U.S. Department of Education, Application for Grants Under the Student Support Services Program, 1992, 20.

[6] U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Poverty in the United States: 1991," Series P60, No. 188, 1992, tables 2 and 3.

[7] Estimated based on data from U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Poverty in the United States, 1991," Series P60, No. 175, 1992, table 6.

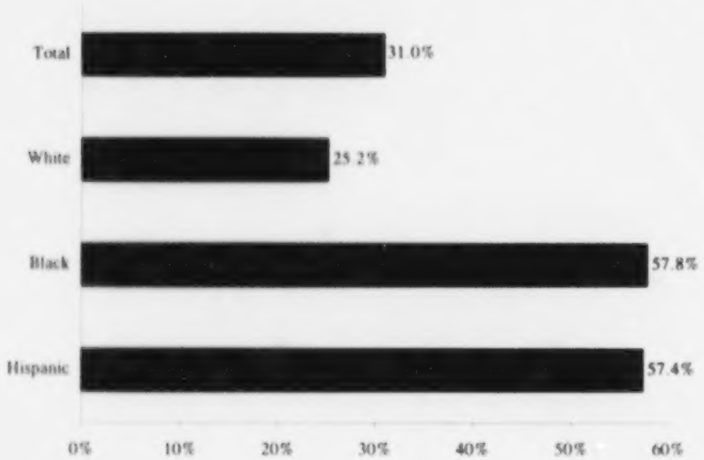
Table 2-1
Number and percent of persons in poverty and persons whose income is under 150 percent of poverty, by race/ethnicity: 1993

Race/ethnicity	Total	In poverty		Under 150 percent of poverty	
		Number	Percent of total	Number	Percent of total
Total persons	259,278	39,265	15.1%	64,872	25.0%
Related children under 18	68,040	14,961	22.0	22,659	33.3
Related children aged 6-17	44,189	8,865	20.1	13,682	31.0
White	214,899	26,226	12.2	45,853	21.3
Related children under 18	53,614	9,123	17.0	14,694	27.4
Related children aged 6-17	34,920	5,369	15.4	8,791	25.2
Black	32,910	10,877	33.1	15,545	47.2
Related children under 18	10,969	5,030	45.9	6,695	61.0
Related children aged 6-17	7,041	2,999	42.6	4,069	57.8
Hispanic	26,559	8,126	30.6	12,810	48.2
Related children under 18	9,188	3,666	39.9	5,464	59.5
Related children aged 6-17	5,622	2,117	37.7	3,226	57.4

NOTE: Numbers represent selected categories as labeled and will not sum to totals. Persons of Hispanic origin may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Income, Poverty, and Valuation of Noncash Benefits: 1993," Series P60, No. 188, 1995, table 8.

Figure 2-2
Percent of related children[1] aged 6-17 years in families under 150 percent of poverty, by race/ethnicity: 1993

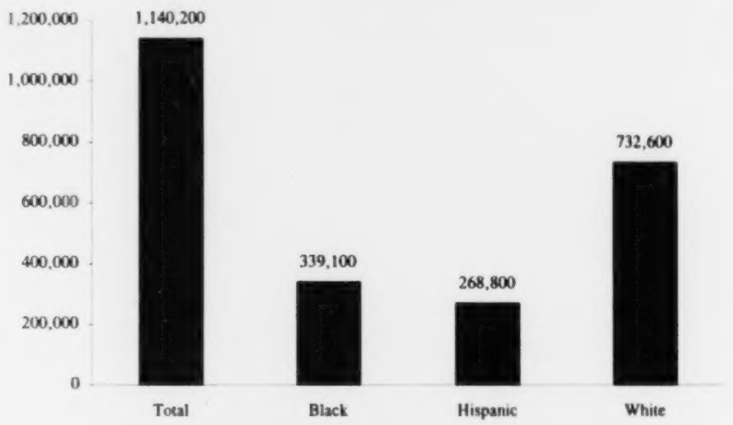


[1] Children have some relation to the reference person used for survey purposes.

NOTE: Persons of Hispanic origin may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Income, Poverty, and Valuation of Noncash Benefits: 1993," Series P60, No. 188, 1995, table 8.

Figure 2-3
Estimated number of 17-year-olds in families under 150 percent of poverty, by race/ethnicity: 1993



NOTE: Numbers do not sum to total because persons of Hispanic origin may be of any race.

SOURCE: Estimated based on data from U.S. Department of Commerce, Bureau of the Census, Current Population Survey, as presented in table 2-1.

Growth in income inequality. Statistics from the Census Bureau indicate that the proportion of disadvantaged families has grown over the last 20 years. As figure 2-4 shows, income inequality has increased. In 1968, the lowest quintile[8] controlled 4.2 percent of aggregate household income. By 1993, its portion had dropped to 3.6 percent. The share of aggregate income held by the middle 60 percent of the population has also declined since 1968, reaching a low of 48.2 percent in 1993. The share controlled by the top 20 percent, however, has risen over the last 25 years. In 1993, the share of aggregate income held by the top 20 percent was equal to the share held by the middle 60 percent. Increasing polarization of income levels is further evidenced by the fact that 20.0 percent of the aggregate household income was held by the top 5 percent of the population in 1993.

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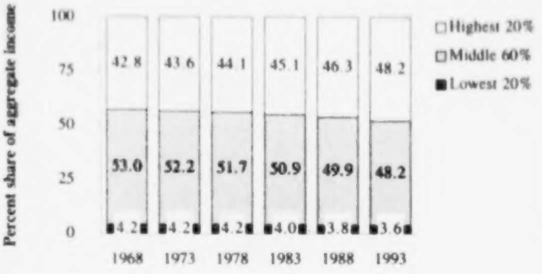
[8] The Census Bureau calculated shares of aggregate income received by households (or other income recipients) by ranking households from lowest to highest on the basis of income and then dividing them into equal population groups (quintiles). The aggregate income of each group was then divided by the overall aggregate income to derive shares.

Figure 2-4
Share of aggregate household income, by quintile: 1968 to 1993



Year	Share held by top 5 percent
1968	16.6%
1973	16.6
1978	16.8
1983	17.1
1988	18.3
1993	20.0

NOTE: Households were ranked from lowest to highest on the basis of income and then divided into quintiles. The aggregate income of each group was divided by the overall aggregate income to derive shares.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports, 1995*, "Income, Poverty, and Valuation of the Noncash Benefits: 1993," Series P60, No. 188, 1995, p. xii.

Another measure of income inequality is the Gini index. The Gini index ranges from 0 to 1. A "0" indicates perfect income equality, meaning that all persons have equal shares of the aggregate income. A "1" indicates perfect inequality, or that one person possesses all the income. Between 1970 and 1993, the index grew from .394 to .447 demonstrating a substantial increase in income inequality.[9,10]

Reasons for increases in income inequality. Explanations for the overall increase in income inequality are complicated and have been the subject of considerable research interest.[11] Among the reasons cited are the industrial restructuring of the economy from a goods production, or manufacturing base, to a services production base, in which jobs typically pay lower wages and have a greater variation in wage levels. Other reasons include changes in household living arrangements (i.e., the shift from married couple families to single parent and nonfamily households) and the growing gap between the economic returns to well educated and poorly educated workers, noting that the supply of highly skilled workers has grown more slowly than that of relatively unskilled workers. Employers are willing to pay higher wages to the skilled workers while wages for nonskilled workers have stagnated, thus widening the income gap. Research conducted by the Bureau of the Census and other researchers has also revealed that higher levels of educational attainment exert a strong positive influence on income trends.

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[9] U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "Income, Poverty, and Valuation of Noncash Benefits: 1993," Series P60, No. 188, 1995, xii.

[10] When the 1993 Gini index was adjusted for the effects of taxes and noncash benefits, the index was lowered to .398 (Ibid., ix).

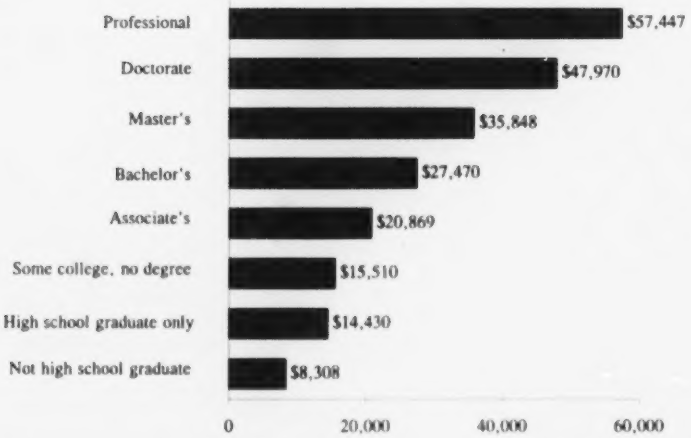
[11] David M. Cutler and Lawrence F. Katz, "Macroeconomic Performance and the Disadvantaged," Brookings Paper on Economic Activity, 1991 (2) pp. 1-74; Frank Levy and Richard Murnane, "Earnings Levels and Earnings Inequality." A Review of Recent Trends and Proposed Explanations," *Journal of Economic Literature*, September, 1992; Paul Ryscavage, Gordon Green, and Edward Weiniak, "The Impact of Demographic, Social and Economic Change on the Distribution of Income," Studies in Income Distribution, *Current Population Reports*, Series P60, No. 183.

EDUCATION AND INCOME

The findings included in this section demonstrate that the economic advantages of completing a college degree versus a high school degree only are large and growing. Thus, the SSS program has made postsecondary retention and completion its primary goal. Figure 2-5 shows the median annual earnings for all persons 18 years and older with income as of 1993. Every increase in educational attainment (with the exception of the doctoral compared to professional levels) was accompanied by an increase in median annual earnings. Median earnings were $14,430 for those with a high school diploma, $27,470 for those with a bachelor's degree, and $47,970 for those with a doctoral degree. The increase in earnings from a high school diploma to a bachelor's degree was over 90 percent.

This relationship between income and educational attainment was similar across all racial/ethnic groups. Blacks holding a high school diploma only had median annual earnings of $11,328 compared with black bachelor's degree recipients who earned $25,663. For Hispanics, median income improved from $12,737 to $24,294 with the addition of a bachelor's degree.

Figure 2-5
Median annual earnings for persons 18 years and older with income, by educational attainment and race/ethnicity: March 1993



	White	Black	Hispanic
Professional	$60,136	$34,471	(B)
Doctorate	$48,816	(B)	(B)
Master's	$36,173	$32,207	$34,815
Bachelor's	$27,916	$25,663	$24,294
Associate's	$21,078	$20,042	$20,163
Some college, no degree	$16,013	$12,377	$14,217
High school graduate only	$14,952	$11,328	$12,737
Not high school graduate	$8,837	$6,523	$8,641

B - Base is less than 75,000 persons.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P20, No. 476, "Educational Attainment in the United States: March 1993 and 1992," 1994, table 8.

Tables 2-2a and 2-2b show the ratio of median annual earnings for male and female wage and salary workers aged 25 to 34 with varying years of school completed compared to those with 12 years of schooling. Once again, the trend shows that relative earnings increased for both males and females of all race/ethnicities as years of schooling completed increased. For example, in 1993 black females aged 25 to 34 with 16 years or more of schooling made 2.23 times as much as black females with only 12 years of schooling (table 2-2b). In 1980, black females with 16 years of school only made 1.64 times as much as those with 12 years of schooling. In 1993, Hispanic males with 16 years or more of education made 1.60 times as much as Hispanic males with 12 years of education. This was a 31 percentage point increase over the 1980 levels. Generally, the economic advantage of college completion for blacks and Hispanics compared with other blacks and Hispanics is greater than the advantage gained by whites relative to other whites.

Table 2-2a
Ratio of median annual earnings of male wage and salary workers 25 to 34 years old with 9-11, 13-15, and 16 or more years of school to those with 12 years of school, by race/ethnicity: Selected years, 1970-93 (in 1994 constant dollars)

Years of school completed	All	White	Black	Hispanic	Ratio of black median earnings to those of whites with equal years of schooling	Ratio of Hispanic median earnings to those of whites with equal years of schooling
9-11 years						
1970	.84	.87	.78	.91	.65	.92
1975	.78	.82	.67	.75	.67	.81
1980	.73	.77	.76	.92	.70	.94
1985	.70	.72	.69	.84	.71	.90
1990	.71	.73	.72	.77	.72	.80
1993	.67	.73	.66	.73	.66	.77
12 years						
1970	1.00	1.00	1.00	1.00	.73	.87
1975	1.00	1.00	1.00	1.00	.82	.88
1980	1.00	1.00	1.00	1.00	.71	.78
1985	1.00	1.00	1.00	1.00	.73	.76
1990	1.00	1.00	1.00	1.00	.73	.76
1993	1.00	1.00	1.00	1.00	.74	.77
13-15 years						
1970	1.10	1.07	1.32	*	.90	*
1975	1.07	1.07	1.08	1.02	.83	.84
1980	1.04	1.03	1.17	1.22	.80	.92
1985	1.19	1.15	1.12	1.27	.72	.84
1990	1.14	1.13	1.26	1.31	.81	.88
1993	1.12	1.12	1.17	1.18	.77	.81
16 years or more						
1970	1.24	1.21	*	*	*	*
1975	1.17	1.15	1.24	*	.88	*
1980	1.19	1.16	1.35	1.29	.82	.86
1985	1.50	1.41	1.75	1.82	.91	.98
1990	1.48	1.42	1.66	1.67	.85	.89
1993	1.57	1.52	1.67	1.60	.81	.82

*Too few cases for a reliable estimate.

NOTE: The ratio is most usefully compared to 1.0. For example, the ratio of 1.67 in 1993 for black males with 16 or more years of school means that they earned 67 percent more than black males with 12 years of school. The ratio of .66 in 1993 for black males with 9-11 years of school means that they earned 34 percent less than black males with 12 years of school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys. As published in U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1995*, 1995, tables 30-1 and 30-3.

Table 2-2b

Ratio of median annual earnings of female wage and salary workers 25 to 34 years old with 9-11, 13-15, and 16 or more years of school to those with 12 years of school, by race/ethnicity: Selected years 1970-93 (in 1994 constant dollars)

Years of school completed	All	White	Black	Hispanic	Ratio of black median earnings to those of whites with equal years of schooling	Ratio of Hispanic median earnings to those of whites with equal years of schooling
9-11 years						
1970	.69	.60	.52	*	.93	*
1975	.64	.64	.60	*	1.08	*
1980	.65	.61	.72	.71	1.18	1.12
1985	.63	.60	.65	.73	.98	1.16
1990	.58	.56	.44	.72	.70	1.14
1993	.59	.53	.59	.70	.83	1.20
12 years						
1970	1.00	1.00	1.00	1.00	1.08	1.07
1975	1.00	1.00	1.00	1.00	1.17	1.10
1980	1.00	1.00	1.00	1.00	1.00	.97
1985	1.00	1.00	1.00	1.00	.90	.97
1990	1.00	1.00	1.00	1.00	.90	.89
1993	1.00	1.00	1.00	1.00	.74	.91
13-15 years						
1970	1.19	1.13	1.31	*	1.26	*
1975	1.24	1.24	1.28	*	1.21	*
1980	1.24	1.25	1.24	1.11	1.00	.86
1985	1.18	1.19	1.17	1.11	.89	.90
1990	1.34	1.33	1.30	1.46	.87	.97
1993	1.31	1.25	1.48	1.29	.88	.93
16 years or more						
1970	1.68	1.81	2.08	*	1.24	*
1975	1.72	1.75	1.69	*	1.13	*
1980	1.52	1.50	1.64	*	1.09	*
1985	1.69	1.66	1.78	1.72	.97	1.00
1990	1.92	1.89	2.09	1.90	.99	.89
1993	1.99	1.89	2.23	1.82	.88	.88

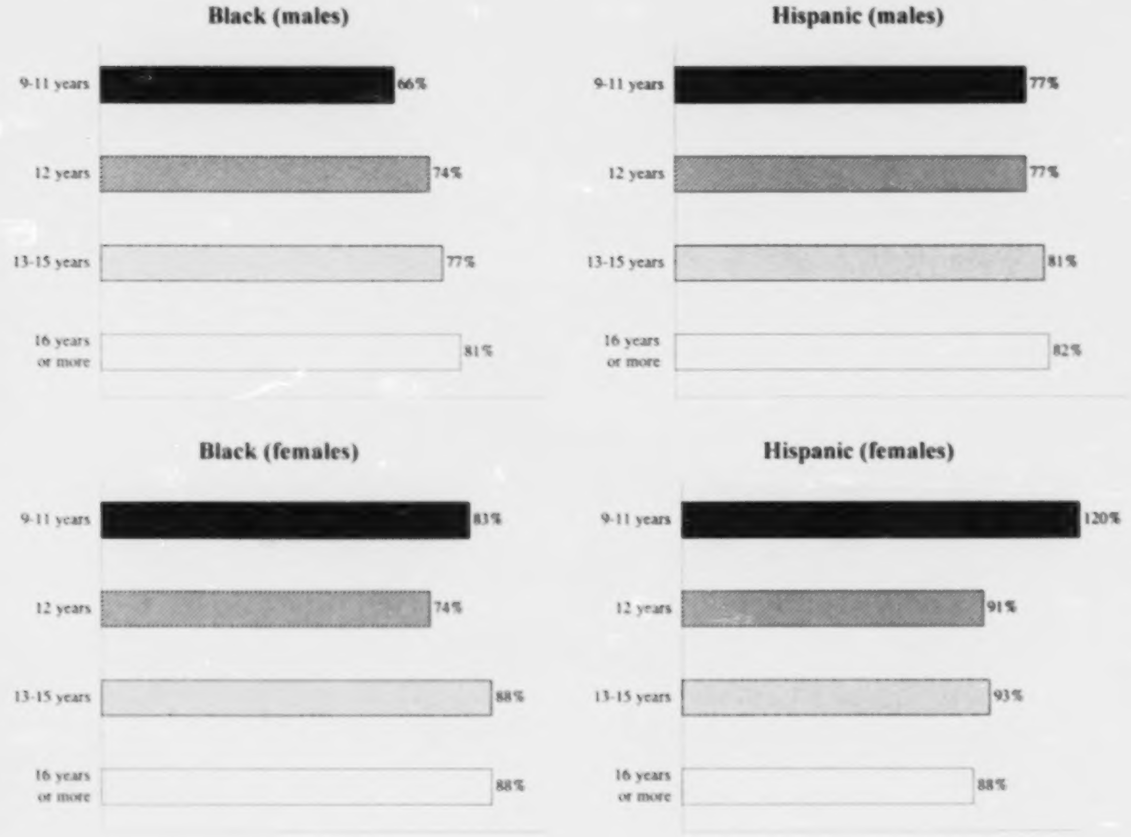
*Too few cases for a reliable estimate.

NOTE: The ratio is most usefully compared to 1.0. For example, the ratio of 1.82 in 1993 for Hispanic females with 16 or more years of school means that they earned 82 percent more than Hispanic females with 12 years of school. The ratio of .59 in 1993 for black females with 9-11 years of school means that they earned 41 percent less than black females with 12 years of school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys. As published in U.S. Department of Education, National Center for Education Statistics, *The Condition of Education: 1995*, 1995, tables 30-2 and 30-3.

It is also true, as shown in figure 2-6, that higher levels of educational attainment reduce the difference in relative median earnings among groups by race/ethnicity. In 1993, black males and females with 12 years of schooling earned 74 percent of the annual income of their white counterparts with the same level of education. At the same time, black males with 16 years of schooling narrowed this gap to 81 percent of the income of white males with 16 years of schooling, while black women with 16 years of schooling earned 88 percent as much as white women with the same level of schooling.

Figure 2-6
Black and Hispanic median annual earnings of wage and salary workers 25 to 34 years old as a percent of white median annual earnings, by years of school completed and sex: 1993 (in 1994 constant dollars)



NOTE: All wage and salary workers aged 25 to 34 have been included.

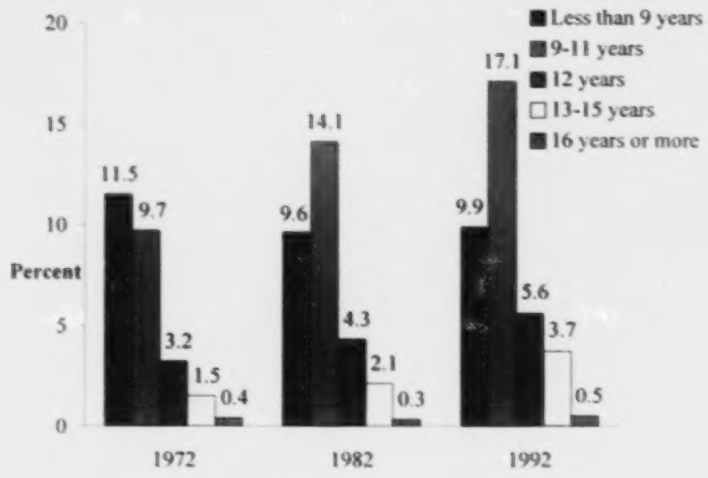
SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Studies. As published in U.S. Department of Education, National Center for Education Statistics, *The Condition of Education: 1995*, 1995, tables 30-1, 30-2, and 30-3.

Employment outcomes. Figure 2-7 also shows that the economic disadvantages of not having a college degree have increased over time. In 1972, 3.2 percent of individuals completing 12 years of education received AFDC or public assistance. By 1992, the percentage of individuals with only 12 years of education receiving AFDC or public assistance had grown to 5.6 percent. Meanwhile, the percentage of individuals with 16 years or more of school receiving AFDC or public assistance had increased only from 0.4 percent to 0.5 percent over the same time period.

In addition, data collected by the Bureau of the Census (table 2-3) shows the employment advantages of earning a bachelor's degree. Among both males and females aged 20 to 49 years, a greater percentage of bachelor's degree recipients than persons not holding

4-year degrees were employed. For example, for males 25 to 29 years old, 90.9 percent of those with bachelor's degrees were employed compared with 85.4 percent of those with high school diplomas.

Figure 2-7
Percent of persons 25-34 who received income from AFDC or public assistance, by years of schooling completed: 1972-92



NOTE: Beginning in 1992, the Current Population Survey changed the questions used to obtain the educational attainment of respondents.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys. As published in U.S. Department of Education, National Center for Education Statistics, *Condition of Education: 1995*, 1995, p. 96.

Table 2-3
Percent of the population[1] who were employed, by sex, educational attainment, and age: March 1994

Age	Males			Females		
	High school diploma	Some college	Bachelor's degree	High school diploma	Some college	Bachelor's degree
20-24	77.9%	63.6%	80.3%	63.6%	67.6%	86.7%
25-29	85.4	87.6	90.9	65.0	75.0	84.4
30-34	85.0	88.2	94.4	67.1	73.6	79.0
35-39	84.6	88.6	94.8	70.5	74.2	79.4
40-44	81.5	89.0	92.5	73.8	79.1	85.6
45-49	83.6	88.9	94.5	72.7	78.6	85.3

[1] Noninstitutionalized civilians. Some individuals are not in the labor force. They may want to attend school or work in the home, for example. Many persons aged 20-24 were enrolled in school or college and were not in the labor force.

NOTE: The category "high school diploma" includes those who have received an equivalency certificate; "some college" includes those who have received an associate's degree; and "bachelor's degree" includes those who have received an advanced degree.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Survey, 1994. As published in U.S. Department of Education, National Center for Education Statistics, *The Condition of Education: 1995*, 1995, p. 90.

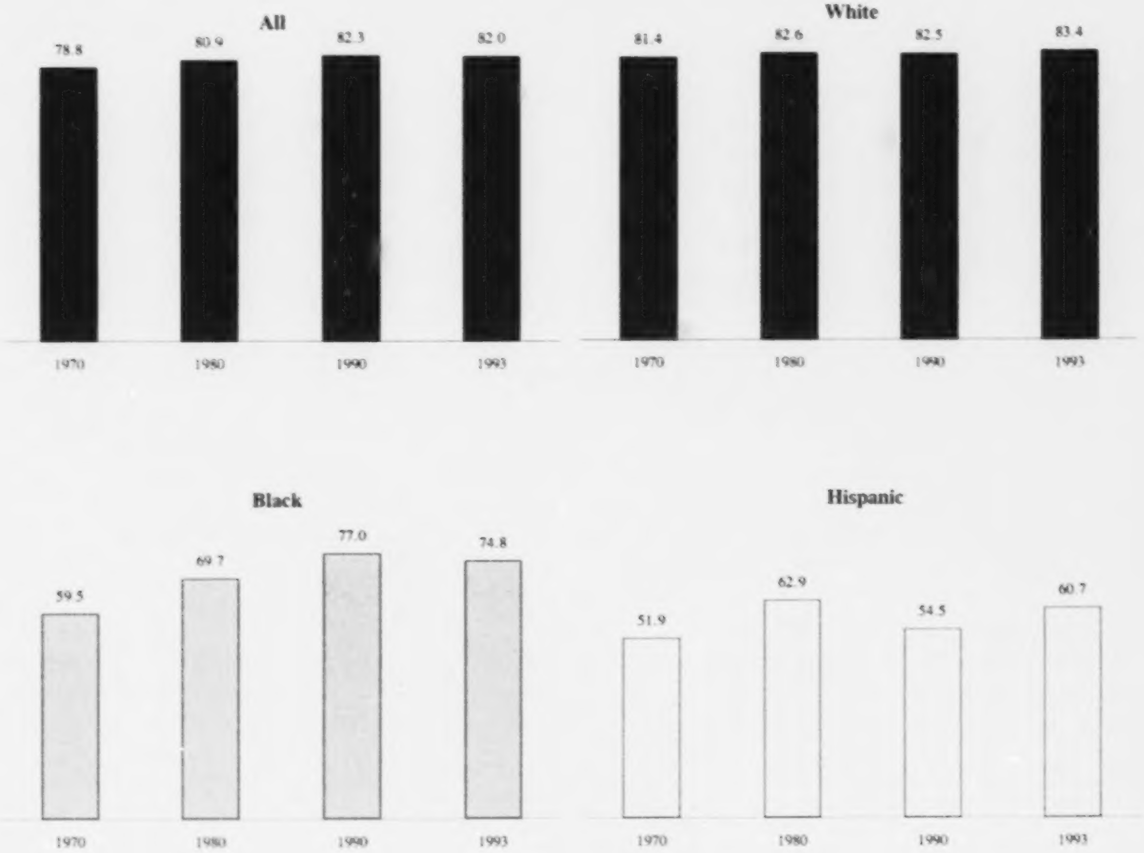
ENROLLMENT AND ATTAINMENT

The previous section of this chapter demonstrated that higher levels of educational attainment were associated with higher income levels. Thus, distinct economic advantages were available to an individual holding a bachelor's degree versus an individual holding only a high school diploma. This section examines the state of postsecondary education in 1993. It considers such factors as improvements in high school graduation rates, increases in college enrollments, and increases in degree completions. At the same time, however, it describes which population subgroups are experiencing positive gains and whether certain groups of students remain disadvantaged. Family income, educational attainment of head of household, and other socioeconomic factors are strongly associated with high school graduation, college enrollment, and bachelor's degree attainment.

High school graduation. Overall high school graduation rates for the total U.S. population aged 18-24 were 78.8 percent in 1970 and increased slightly to 82.0 percent in 1993 (figure 2-8). The largest increases in completion rates were gained by blacks. The percentage of 18- to 24-year-old blacks graduating from high school jumped from 59.5 percent in 1970 to 74.8 percent in 1993. High school completion rates for Hispanics peaked in 1980 at 62.9 percent. These rates decreased to 54.5 percent in 1990, but rebounded almost to their peak level by 1993. Data for Hispanics are influenced by shifts in immigration trends.

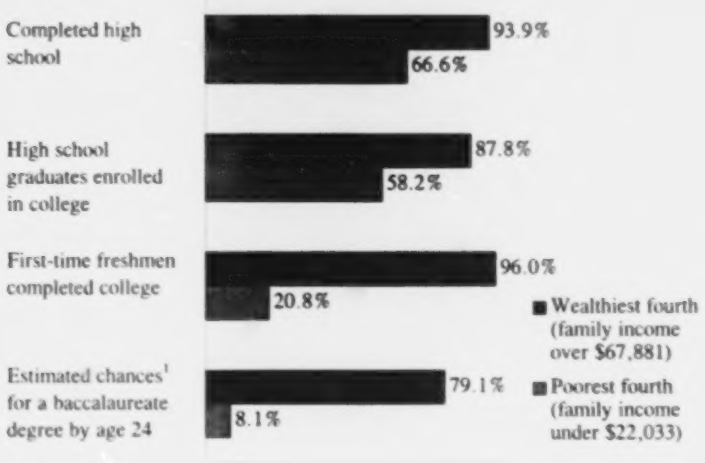
Figure 2-9 examines high school graduation rates by family income in 1994. For students in families with incomes over $67,881, 93.9 percent completed high school. For students in families with incomes under $22,033, the percentage completing high school was 66.6 percent. Thus, the poorest fourth of 18- to 24-year-olds were only two-thirds as likely to earn a high school degree (or equivalency certificate) as the wealthiest fourth of 18- to 24-year-olds.

Figure 2-8
Percent of 18- to 24-year-olds completing high school, by race/ethnicity: Selected years, 1970-93



NOTE: Persons of Hispanic origin may be of any race.
SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, "School Enrollment - Social and Economic Characteristics of Students: October 1993," Series P20, No. 479, 1994, table F; and *Current Population Reports*, "School Enrollment - Social and Economic Characteristics of Students: October 1990," Series P20, No. 460, 1992.

Figure 2-9
Educational participation of 18- to 24-year-olds and attainment by age 24: 1994



[1] Estimated chances for a baccalaureate degree were calculated by multiplying high school graduation rates by enrollment rates and completions. See figure 2-19 for additional details.

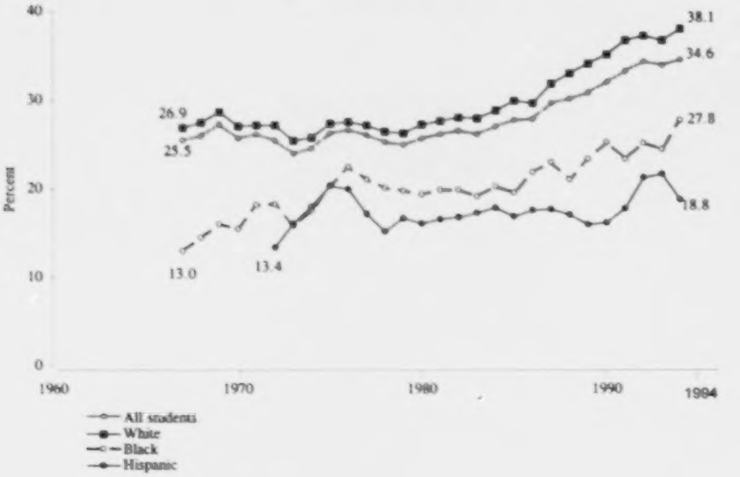
SOURCE: "Postsecondary Education Opportunity," The Mortenson Research Letter on Public Policy Analysis of Opportunity for Postsecondary Education, No. 41, November 1995 (Iowa City, IA).

College enrollment. As the number of high school graduates increases, so does the pool of potential college applicants. College enrollment rates follow the same trend exhibited by high school graduation rates during the 1970s but experienced smaller gains in the 1980s. Figure 2-10 displays the enrollment rates of all 18- to 24-year-olds in postsecondary institutions. Overall, 34.6 percent of these individuals were enrolled in 1993. This enrollment rate was slightly higher for whites (38.1 percent), slightly lower for blacks (27.8 percent), and substantially lower for Hispanics (18.8 percent). Every racial/ethnic group, however, has experienced enrollment gains since the 1960s and 1970s. For example, the enrollment rates for blacks aged 18 to 24 more than doubled from their 1960s levels.

Postsecondary enrollment rates are even higher when only high school graduates 18 to 24 years old are considered. Within this stratum, 42.3 percent were enrolled in postsecondary institutions in 1993 (figure 2-11). These rates are also higher for all racial/ethnic groups. For example, in 1994 enrollment rates for blacks and Hispanics reached 35.6 percent and 33.1 percent, respectively.

Figure 2-10

Enrollment rates of 18- to 24-year-olds in institutions of higher education, by race/ethnicity: Selected years, 1967-94

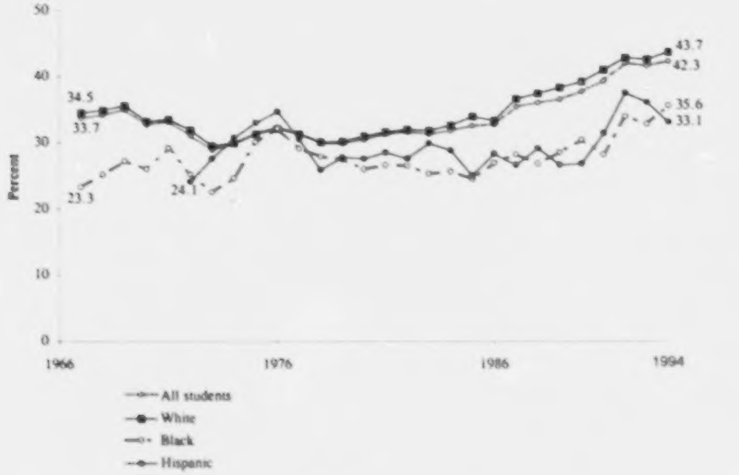


NOTE: Data for white and black enrollment include persons of Hispanic origin. Data are based upon sample surveys of the civilian population. Percents based on 18- to 24-year-old high school graduates for 1992, 1993, and 1994 use a slightly different definition of graduation and may not be directly comparable with figures for other years. All college students are counted as high school graduates.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished data. (This table was prepared May 1995.) As published in U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics: 1995*, 1995, table 180.

Figure 2-11

Enrollment rates of 18- to 24-year-olds in institutions of higher education as a percent of high school graduates, by race/ethnicity: 1967-94



NOTE: Data for white and black enrollment include persons of Hispanic origin. Data are based upon sample surveys of the civilian noninstitutional population. Percents based on 18- to 24-year-old high school graduates for 1992, 1993, and 1994 use a slightly different definition of graduation and may not be directly comparable with figures for other years. All college students are counted as high school graduates.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, unpublished data. (This table was prepared May 1995.) As published in U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics: 1995*, 1995, table 180.

Delayed enrollment. Table 2-4 examines delayed postsecondary entrance on the basis of race/ethnicity. A 1992-93 survey of undergraduates revealed that 42.7 percent did not enroll in college directly following their high school graduation. This percentage was slightly higher for black, non-Hispanics (48.5 percent) and Hispanics (45.5 percent). While white, non-Hispanics had lower rates of delayed enrollment (41.4 percent), they had the longest average delay (7.5 years) of any racial/ethnic group.

Enrollment following graduation. Figure 2-12 shows the percentage of high school graduates enrolled in college the October following graduation. In 1972, 49.7 percent of whites, 44.6 percent of blacks, and 48.8 percent of Hispanics entered college the October after graduation. By 1993, these rates had increased to 62.9 percent for whites, 55.6 percent for blacks, and 58.2 percent for Hispanics.[12]

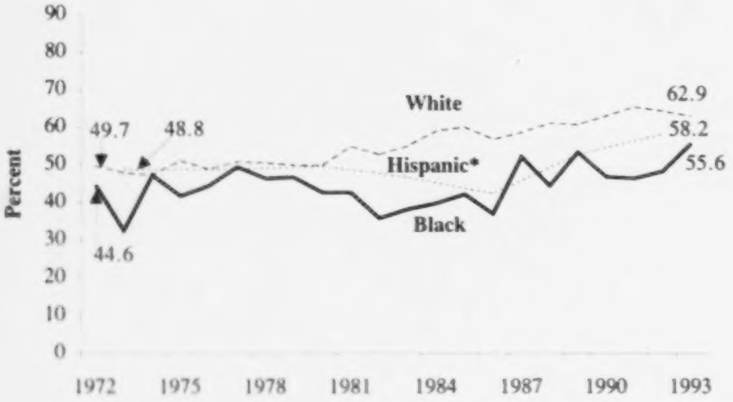
Table 2-4
Percent of undergraduates who did not enroll in postsecondary education in the same year they graduated and the average number of years delayed, by race/ethnicity: 1992-93

Race/ethnicity	Delayed enrollment	Average number of years delayed
Total	42.7%	7.2
American Indian/Alaska Native	49.0	6.3
Asian/Pacific Islander	37.2	5.4
Black, non-Hispanic	48.5	6.5
Hispanic	45.5	6.1
White, non-Hispanic	41.4	7.5

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System. As published in NCES, Statistical Analysis Report, *Profile of Undergraduates in U.S. Postsecondary Education Institutions: 1992-93*, 1995, table 1.1b.

Figure 2-12
Percent of high school graduates enrolled in college the October following graduation, by race/ethnicity: October 1972-93



*Due to the small sample size for the Hispanic category, 3-year overlapping averages were calculated. The 3-year average for 1992 is the average percentage of graduates enrolled in 1991, 1992, and 1993. Figures for 1993 are not available.

SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys. As published in U.S. Department of Education, National Center for Education Statistics, *Condition of Education: 1995*, 1995, p. 43.

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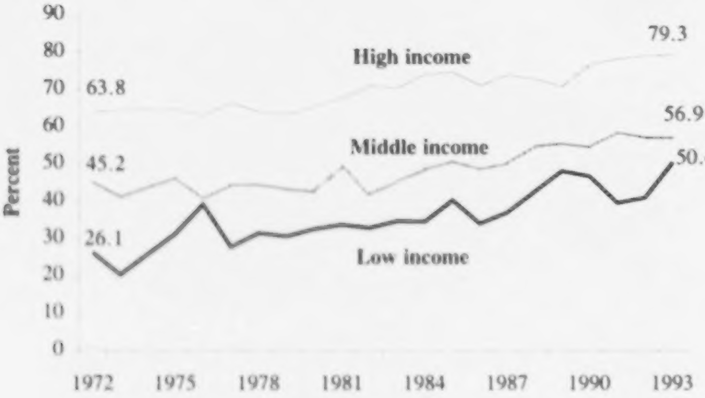
[12] Due to the small sample size for the Hispanic category, 3-year averages were calculated. The figure used for 1972 is the 3-year average calculated for 1973 using 1972, 1973, and 1974 data. The figure used for 1993 is the 3-year average calculated using 1991, 1992, and 1993 data.

Differences in college participation by family income. Figure 2-13 displays the percentage of high school graduates enrolling in college in the October following their high school graduation based on family incomes. Of individuals from high-income families in 1993, 79.3 percent enrolled in a postsecondary institution in the October following their high school graduation. For individuals from low-income families, this enrollment rate was only 50.4 percent. This does, however, represent a decrease in the gap between high-income and low-income enrollment from the 1972 levels. In 1972, low-income students enrolled at a rate of 40 percent of that of high-income students. By 1993, low-income enrollment had increased to almost 64 percent of high-income enrollment.

Figure 2-13
Percent of high school graduates enrolled in college the October following graduation, by family income: October 1972-93



NOTE: Low income is the bottom 20 percent of all family incomes; high income is the top 20 percent of all family incomes; and middle income is the 60 percent in between.

SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys. As published in U.S. Department of Education, National Center for Education Statistics, *Condition of Education: 1995*, 1995, p. 43.

College participation by educational attainment of householder. College participation is also influenced by the educational attainment of the head of the student's household. Figure 2-14 shows the chances that dependent 18- to 24-year-olds have of finishing high school and entering a postsecondary institution based on the educational attainment of the family householder. For each racial/ethnic group, almost every increase in the educational attainment of the householder is accompanied by an increase in the chance that the 18- to 24-year-old dependent will both complete high school and enroll in college.[13] In 1993, white students had an

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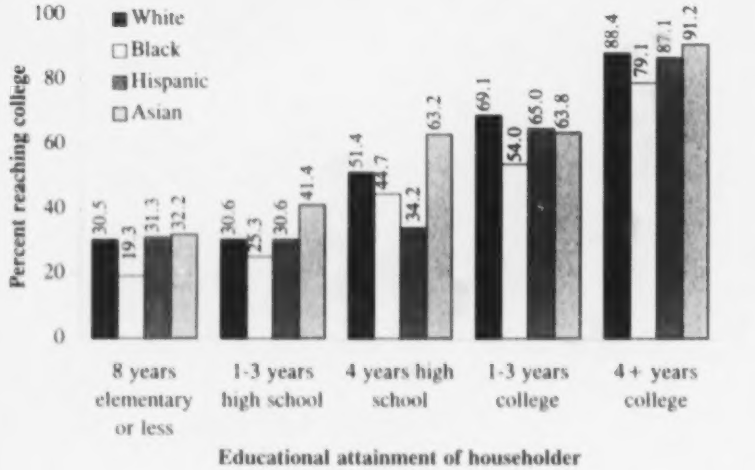
[13] The only exception to the upward trend is the chance for high school completion and college enrollment for Hispanic students whose head of household completed 8 years of elementary school or less versus one who completed 1-3 years of high school. The chances are 31.3 percent and 30.6 percent, respectively.

88.4 percent chance of reaching college when their family householders had completed 4 or more years of college. This chance dropped to 51.4 percent if the householder had completed only 4 years of high school. For blacks, a student had a 79.1 percent chance of enrolling in college if the head of household had 4 or more years of colleges. This likelihood declined to 44.7 percent if only 4 years of high school were completed. For Hispanics, these figures were 87.1 percent and 34.2 percent, respectively. Thus, Hispanic dependent 18- to 24-year-olds were twice as likely to reach college if the family householder completed 4 or more years of college rather than only 4 years of high school.

Figure 2-14
Chance that dependent family members 18 to 24 years old will enroll in college, by race/ethnicity and educational attainment of householder[1]: 1993

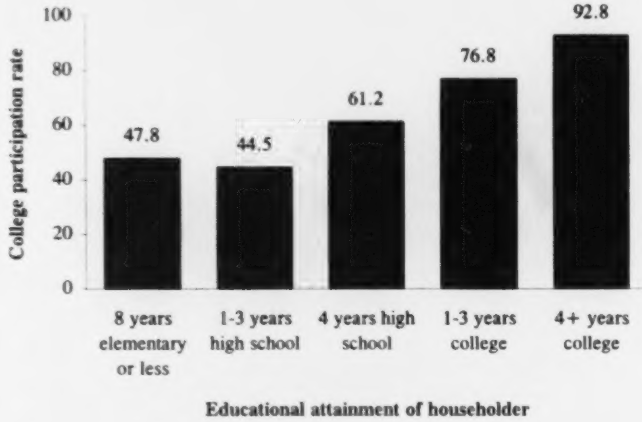


[1] Chance that a dependent 18-to 24-year-old will both graduate from high school and enroll in college based on the educational attainment of the family householder.

SOURCE: "Postecondary Education Opportunity," The Mortenson Research Letter on Public Policy Analysis of Opportunity for Postsecondary Education, No. 30, March 1995 (Iowa City, IA).

Figure 2-15 shows the overall college participation rates for 18- to 24-year-old dependent high school graduates by the educational attainment of the householder. In most cases, as the level of educational attainment increased, the college participation rate was greater. For students coming from households where the head of household had 4 or more years of college, the participation rate was 92.8 percent. This rate declined to 61.2 percent for students coming from households where the head of household had completed only 4 years of high school.

Figure 2-15
College participation rates[1] for dependent family members 18 to 24 years old, by educational attainment of householder: 1993



[1] Only includes persons who have earned a high school diploma or equivalency certificate.

SOURCE: "Postecondary Education Opportunity," The Mortenson Research Letter on Public Policy Analysis of Opportunity for Postsecondary Education, No. 30, March 1995 (Iowa City, IA).

As part of the National Center for Education Statistics (NCES) *High School and Beyond* study, a cohort of 1980 high school sophomores was examined to determine the impact of parental educational attainment on student educational attainment. Table 2-5 shows the level of education completed by students' parents and the corresponding level completed by the student. Students whose parents held an advanced degree earned the highest percentages of bachelor's, master's, and doctoral degrees, followed by students whose parents had earned bachelor's degrees. Student degree attainment at each degree level declined as the level of parental education declined. For example, 42.4 percent of students whose parents held bachelor's degrees earned bachelor's degrees compared with 16.6 percent of students whose parents were high school graduates only.

Table 2-5
Percent distribution of 1980 high school sophomores, by highest level of education completed through 1992, by selected student characteristics: 1980-92

Student characteristic	All 1980 sophomores	Less than high school	High school	Certificate	Associate's degree	Bachelor's degree	Master's degree	Professional degree	Doctor's degree
Parents' educational attainment in 1980									
No high school diploma	100.0%	6.5%	59.8%	12.8%	8.6%	10.8%	1.2%	0.3%	0.1%
High school graduate	100.0	5.2	59.1	12.4	6.0	16.6	0.3	0.4	NA
Vocational/technical	100.0	3.0	49.2	15.4	10.2	19.1	2.4	0.5	0.1
Some college	100.0	2.1	43.7	8.4	8.4	32.0	4.3	1.0	0.2
Bachelor's degree	100.0	1.4	32.6	4.9	8.1	42.4	6.9	3.1	0.5
Advanced degree	100.0	3.5	23.9	8.6	4.9	44.1	10.0	4.3	0.7

NA = Data not applicable or not available.

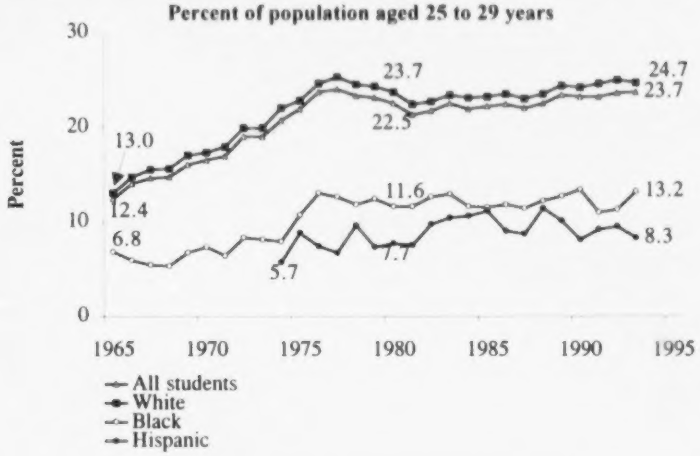
NOTE: Because of rounding, percents may not add to 100.

SOURCE: National Center for Education Statistics, *High School and Beyond, Educational Attainment of High School Sophomores by 1992*. As published in NCES, *Digest of Education Statistics: 1995*, 1995, table 299.

College completion. College completion rates for those 25 to 29 years old (graphic) and for the total population over 25 years old (tabular) are presented in figure 2-16. Since 1965 the rate of college completion for the total population over age 25 has more than doubled, from 9.4 percent in 1965 to 21.9 percent in 1993. For all 25- to 29-year-olds, completion rates grew more rapidly during the 1960s and 1970s than in the 1980s. The overall completion rate was 12.4 percent in 1965, 22.5 percent in 1980, and only 23.7 percent in 1993. For blacks, the rate was 11.6 percent in 1980, and 13.2 percent in 1993. The rates for Hispanics have risen less than 3 percentage points from their 1975 level.

Figure 2-17 shows the percentage of 25- to 29-year-olds who have completed high school and the percentage of high school graduates who have completed varying years of college. In 1971, 77.7 percent of this population had graduated from high school. By 1994, 86.1 percent had earned a high school diploma or an equivalency certificate. In 1971, 22.0 percent of 25- to 29-year-olds had completed 4 or more years of college. By 1994, 27.0 percent had earned at least a bachelor's degree. Similar increases occurred for each racial/ethnic group at each level of educational attainment.

Figure 2-16
Percent of population who have completed 4 years or more of college: Selected years, 1965-93


Percent of population aged 25 to 29 years

Percent of population 25 years and over who have completed 4 years or more of college

Year	All	White	Black	Hispanic
1965	9.4	9.9	4.7	NA
1970	11.0	11.6	4.5	NA
1975	13.9	14.5	6.4	6.3
1980	17.0	17.8	7.9	7.9
1985	19.4	20.0	11.1	8.5
1990	21.3	22.0	11.3	9.2
1991	21.4	22.2	11.5	9.7
1992	21.4	22.1	11.9	9.3
1993	21.9	22.6	12.2	9.0

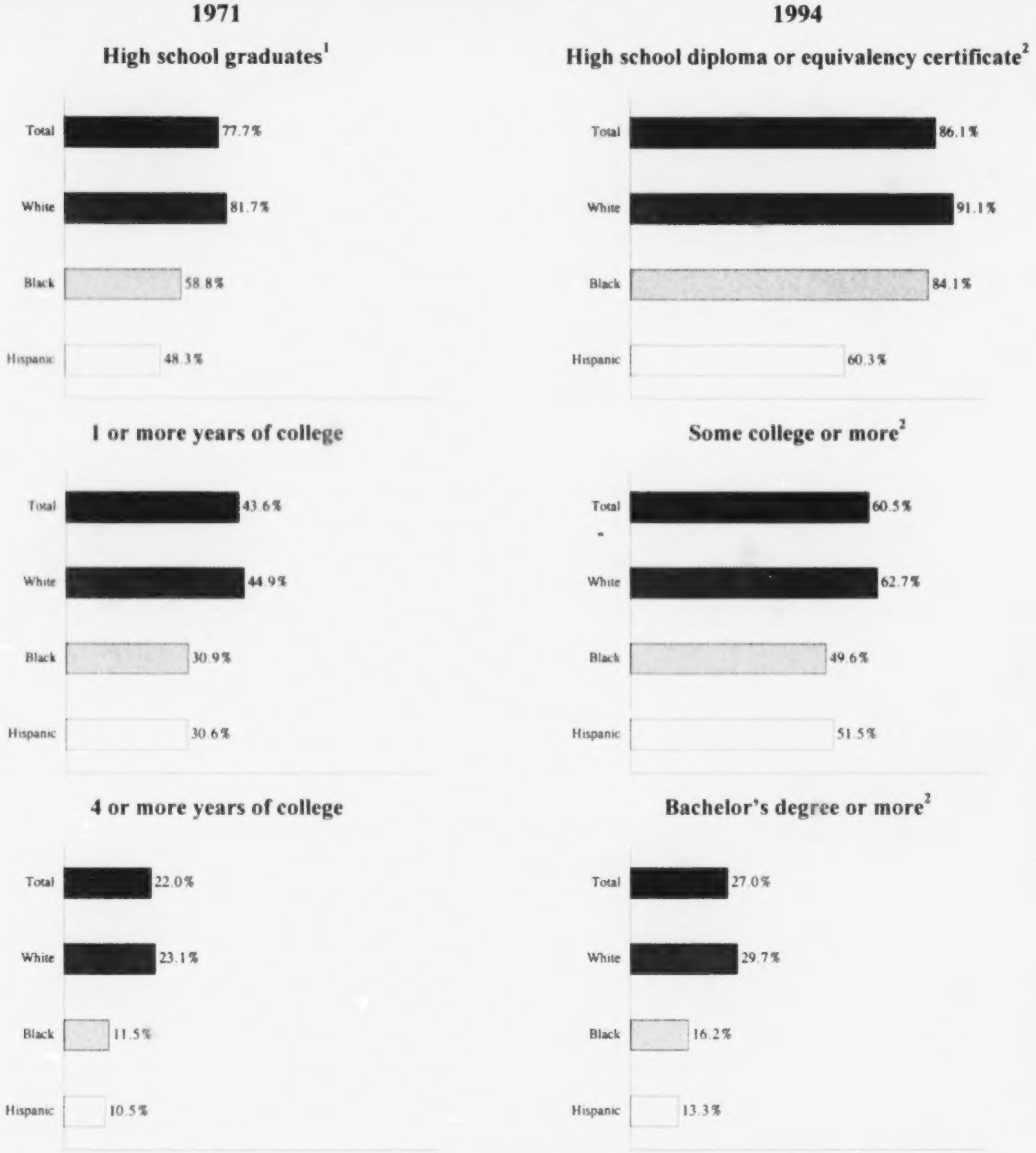
NA - Not available.

NOTE: Beginning with 1988, a new edit and tabulation package has been used. Persons of Hispanic origin may be of any race.

SOURCE: U.S. Bureau of the Census, *Current Population Reports*, "Education Attainment in the United States: March 1993 and 1992," Series P20, No. 476, 1994, table 18.

Figure 2-17

Percent of 25- to 29-year-olds who have completed high school and percent of high school graduates who have completed some college or more and a bachelor's degree or more: 1971 and 1994



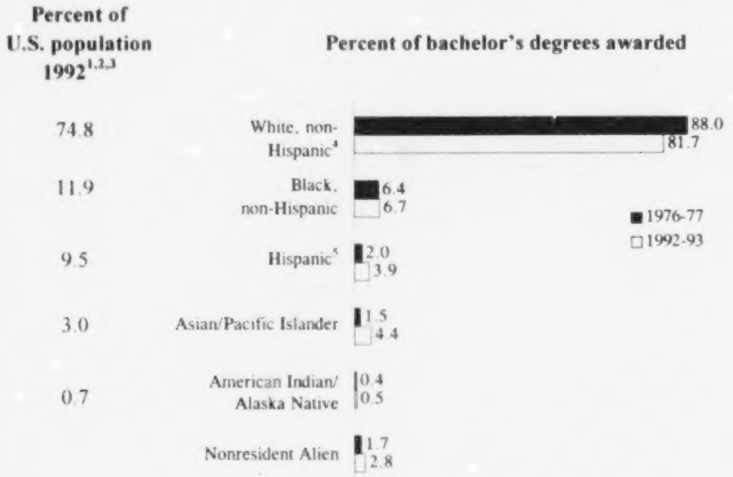
[1] Twelve years of school completed in 1971-91 and high school diploma or equivalency certificate for 1992-94.

[2] Beginning in 1992, the Current Population Survey changed the questions it used to obtain the educational attainment of respondents.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys. As published in U.S. Department of Education, National Center for Education Statistics, *The Condition of Education: 1995*, 1995, tables 22-1, 22-2, and 22-3.

Bachelor's degree attainment. During the 1976-77 academic year, the first year for which extensive racial/ethnic data were collected, 925,746 bachelor's degrees were awarded. By 1992-93, the number of bachelor's degrees had increased to 1,165,178.[14] Of the degrees awarded in 1976-77, 88.0 percent went to white, non-Hispanic graduates, 6.4 percent to black, non-Hispanic graduates, 2.0 percent to Hispanic graduates, 1.5 percent to Asian or Pacific Islander graduates, and 0.4 percent to Native Americans (figure 2-18). By 1992-93, the percentage of degrees conferred to each racial/ethnic group, with the exception of white, non-Hispanic graduates, had risen. Only white, non-Hispanics and Asian Americans, however, earned enough bachelor's degrees to equal their overall representation in the total resident population. For example, white, non-Hispanics composed 74.8 percent of the total U.S. resident population and earned 81.7 percent of the bachelor's degrees awarded in 1992-93, while blacks composed 11.9 percent of the total U.S. resident population and only earned 6.7 percent of the bachelor's degrees in 1992-93.

Figure 2-18
Percent distribution of bachelor's degrees awarded, by race/ethnicity: 1976-77 and 1992-93



[1] Only includes U.S. populations.

[2] Because of rounding, percents may not add to 100.

[3] Taken from U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1995*, 1995, No. 19, 19.

[4] The category, "white, non-Hispanic" includes those in "other" racial/ethnic categories in addition to whites.

[5] Persons of Hispanic origin may be of any race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Surveys (HEGIS), "Degrees and Other Formal Awards Conferred in Institutions of Higher Education;" and Integrated Postsecondary Education Data System (IPEDS) "Completions" survey.

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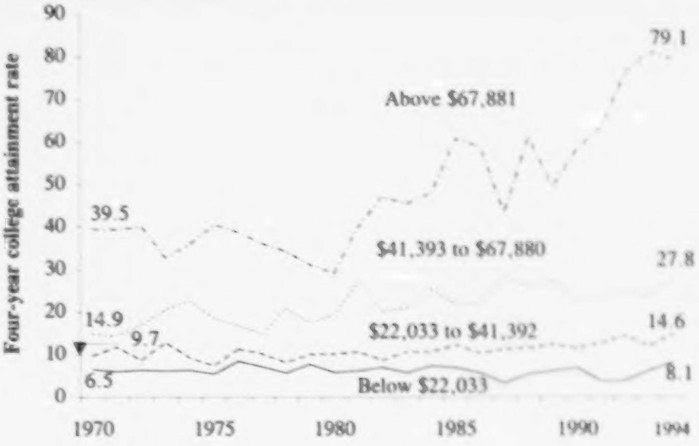
[14] U.S. Department of Education, National Center for Education Statistics, Earned Degrees Conferred, Integrated Postsecondary Data System (IPEDS), "Completions" surveys. As published in NCES, *Digest of Education Statistics: 1995*, 1995, table 256.

Another way of examining the significance of the number of bachelor's degrees awarded is to consider an individual student's chances of obtaining a bachelor's degree by age 24 based on family income. Figure 2-19 shows that a student with a family income in the top quartile is almost 10 times as likely to earn a bachelor's degree than a student whose family income is in the bottom quartile. Even for students whose family income falls in the second or third quartile, the chances of obtaining a bachelor's degree are substantially lower (14.6 percent and 27.8 percent, respectively) than for a student whose family's income is above $67,881.

Figure 2-19
Estimated chances for a baccalaureate degree by age 24, by family income quartile: 1970 to 1994

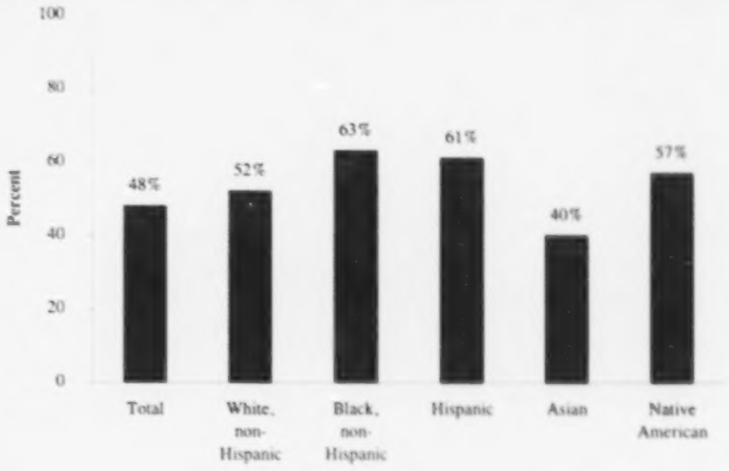


NOTE: The 4-year college attainment rate was calculated by multiplying high school graduation rates by enrollment rates and college completions. For further information about these calculations, contact Tom Mortenson directly.

SOURCE: "Postsecondary Education Opportunity," The Mortenson Research Letter on Public Policy Analysis of Opportunity for Postsecondary Education, No. 41, November 1995 (Iowa City, IA).

First-generation college students.[15] The SSS eligibility criteria specifically states that two-thirds of students served must be first-generation college and low-income students or be individuals with disabilities. The remaining one-third must be either first generation, low-income or disabled. In 1990, approximately 48 percent of all bachelor's degree recipients were first-generation college students (figure 2-20). Among minority students, 63 percent of black, 61 percent of Hispanic, 57 percent of Native American, and 40 percent of Asian graduates were first-generation college students.

Figure 2-20
Percent of 1990 bachelor's degree recipients who are first-generation college, by race/ethnicity



NOTE: First generation is defined as neither parent having a bachelor's degree.
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1991 Recent College Graduates Survey, unpublished tabulations.

COLLEGE RETENTION RATES

The next several sections examine postsecondary retention and persistence rates from the standpoint of family income, race/ethnicity, and institutional and student characteristics. They focus on the retention and persistence rates that have been attained by academically and economically disadvantaged students.

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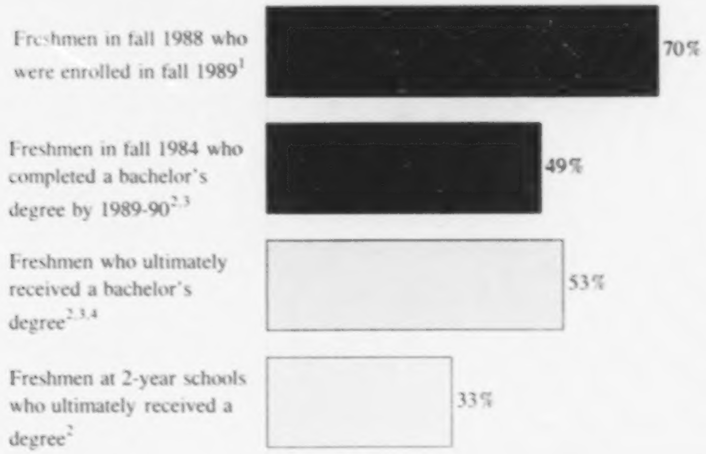
[15] First-generation college student is defined as an individual whose parents did not complete a bachelor's degree or, if the individual regularly resides with and receives support primarily from one parent only, that parent did not receive a bachelor's degree.

College graduation rates range from over 90 percent in a few highly selective schools to less than 20 percent in some 2-year institutions. A Department of Education survey conducted in 1990 found that retention rates from the first year to the second year were about 70 percent nationwide (figure 2-21). About 49 percent of those enrolled received a bachelor's degree within 6 years and about 53 percent ultimately graduated from the institution in which they first enrolled. Among students at 2-year schools, approximately one-third ultimately graduated from the institution. These figures do not include students that dropped out of institutions to continue elsewhere or those that transferred to other schools, so they underestimate the percentage of students who eventually completed a postsecondary degree.

Figure 2-21
Retention rates for first-time, full-time freshmen at higher education institutions



[1] Includes full-time, first-time freshmen enrollment at all postsecondary institutions offering degrees.

[2] Full-time, first-time freshmen who completed degrees at the institutions in which they originally enrolled.

[3] Only full-time, first-time freshmen enrolled in institutions offering baccalaureate degrees were included.

[4] Examination of the data revealed frequent inconsistencies between the reported ultimate graduation rate and the 6-year baccalaureate completion rate. Many institutions reported lower ultimate graduation rates than 6-year rates, though the differences were typically small. The inconsistencies are another indication that the data on ultimate graduation rates were not as reliable as those on 6-year rates. This measure is retained because it received a higher response rate than the 6-year baccalaureate completion rate.

SOURCE: U.S. Department of Education, Higher Education Surveys, *Survey on Retention at Higher Education Institutions* (HES 14), 1991 (survey conducted in 1990), figure 1.

College persistence by family income. Table 2-6 examines the persistence rates of first-time postsecondary students by family income using student self-reports rather than institutional data. The students studied entered postsecondary institutions during the 1989-90 academic year and were surveyed on their enrollment status during the 1991-92 academic year.[16] Of the low-income students who entered seeking an associate's degree, only 4.6 percent enrolled in and completed an associate's degree program within this time frame, and 52.7 percent dropped out of their programs and did not reenroll.[17] Of the high-income students, 16.7 percent completed their associate's degrees but 40.5 percent stopped and did not reenroll.

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[16] U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Student Longitudinal Survey, 1992.

[17] It is possible that students failing to reenroll transferred to a 4-year program rather than completing a 2-year degree.

Table 2-6

Enrollment and completion status of first-time postsecondary students starting during the 1989-90 academic year, by degree objective and other student characteristics: Spring 1992

Student characteristic	Vocational certificate					Associate's degree						Bachelor's degree				
	Number in thousands	Total	Completed in 9 months or less	Completed in over 9 months	Not completed	Number in thousands	Total	Completed	Continuously enrolled	Stopped and re-enrolled[1]	Stopped, no reenrollment[2]	Number in thousands	Total	Continuously enrolled	Stopped and re-enrolled[1]	Stopped, no reenrollment[2]
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Race																
White, non-Hispanic	270	100.0	29.6	23.1	47.3	566	100.0	12.8	18.5	21.6	47.2	920	100.0	57.6	17.9	24.5
Black, non-Hispanic	55	100.0	26.4	17.5	56.1	70	100.0	7.9	12.2	27.1	52.9	92	100.0	50.3	23.4	26.3
Hispanic	36	100.0	23.2	9.2	67.6	52	100.0	16.6	27.0	28.0	28.4	76	100.0	46.0	27.7	26.3
Socioeconomic status																
Low (25 percent)	126	100.0	36.6	16.2	47.2	124	100.0	4.6	22.7	20.0	52.7	75	100.0	50.4	18.8	30.9
Middle (50 percent)	195	100.0	28.0	23.1	48.9	374	100.0	12.3	15.7	24.9	47.1	434	100.0	53.8	18.8	27.4
High (25 percent)	56	100.0	16.4	26.8	56.9	210	100.0	16.7	23.1	19.8	40.5	653	100.0	59.6	19.0	21.4
Dependent student family income																
Less than $20,000	269	100.0	35.3	18.2	46.5	347	100.0	7.8	17.1	23.0	52.1	294	100.0	47.6	20.2	32.3
$20,000 to $39,999	56	100.0	10.8	26.3	62.9	162	100.0	18.3	22.0	21.2	38.4	300	100.0	57.4	19.6	23.1
$40,000 to $59,999	30	100.0	16.3	44.8	39.0	128	100.0	15.8	22.0	20.5	41.7	288	100.0	56.2	19.7	24.2
$60,000 or more	([3])	([3])	([3])	([3])	([3])	71	100.0	14.6	16.5	26.5	42.5	280	100.0	66.7	16.2	17.2
Time between high school graduation and entering postsecondary education																
12 months or less	154	100.0	36.1	20.7	43.2	444	100.0	5.1	11.6	23.4	60.0	1,020	100.0	37.7	25.3	37.0
More than 12 months	221	100.0	19.4	22.2	58.4	263	100.0	16.6	23.5	22.0	37.9	142	100.0	59.5	18.0	22.5

[1] Includes those students who were not enrolled for more than 4 months out of the year. Some students may not be enrolled at the time of the followup survey.

[2] Includes those students who stopped enrolling for more than 4 months and did not reenroll during the survey period.

[3] Too few observations for a reliable estimate.

NOTE: Data reflect completion and enrollment status by spring 1992 of first-time postsecondary students starting academic year 1989-90. Due to the limited time period covered by the survey, it was inappropriate to calculate bachelor's degree completion rates. Some cells in this table have relatively large sampling errors. Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Student Longitudinal Survey, 1992. (This table was prepared in June 1994.) As published in National Center for Education Statistics, *Digest of Education Statistics 1995*, 1995, table 304.

Since the followup study occurred 3 years after this student cohort entered postsecondary school, it is not realistic to expect that many students had completed a 4-year degree. An analysis, however, was made to determine which students were continuously enrolled, which stopped and reenrolled, and which stopped reenrolling for more than 4 months and did not reenroll during the survey period. Only 50.4 percent of low-income students remained continuously enrolled compared with 59.6 percent of high-income students.[18] There is little difference between the percentages of each of these groups that stopped and reenrolled (18.8 percent and 19.0 percent, respectively), however, 30.9 percent of the low-income students stopped and did not reenroll. Among high-income students, this rate was only 21.4 percent.

Retention rates for underrepresented groups. Table 2-6 also examines persistence and completions by race/ethnicity. At the associate's degree level, Hispanics experienced the highest completion rates (16.6 percent), the highest continuous enrollment rates (27.0 percent), and the lowest rate of stopping out without reenrollment (28.4 percent). Black, non-Hispanic students had the lowest completion rates (7.9 percent) and highest incidence of stopping without reenrollment (52.9 percent). At the bachelor's degree level, white, non-Hispanic students had the highest continuous enrollment rates (57.6 percent) compared with 50.3 percent for black, non-Hispanic students and 46.0 for Hispanic students. The stopping out without reenrollment rates, however, were much closer among the racial/ethnic groups considered. Approximately 24.5 white, non-Hispanic students did not reenroll in their 4-year degree program compared with 26.3 percent of both black, non-Hispanic and Hispanic students. At this level, race/ethnicity seems to have an impact on whether a student will stop and reenroll, whereas socioeconomic status seems to exert a greater influence over whether a student will drop out without reenrollment.

A second way of studying persistence by race/ ethnicity is to compare the distribution of enrollments with that of completions. In 1992-93, black, non-Hispanic students represented 10.4 percent of undergraduate enrollment but only obtained 6.7 percent of all bachelor's degrees awarded (see table 2-7). Hispanics were approximately 7.2 percent of the enrollment but only earned 3.9 percent of bachelor's degrees. Native Americans composed 0.9 percent of undergraduate enrollment but received only 0.5 percent of bachelor's degrees awarded.

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[18] Approximately 75,000 low-income students were pursuing a bachelor's degree compared with 653,000 high-income students.

Table 2-7
Undergraduate enrollment and degree attainment, by race/ethnicity: 1976-93

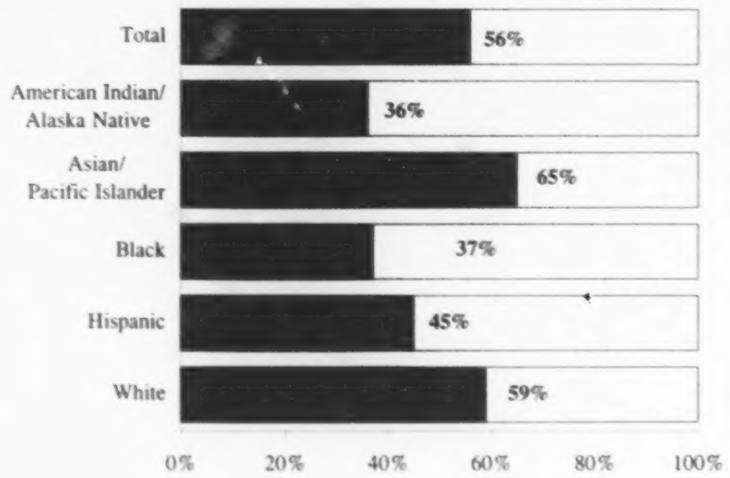
Race/ethnicity of student and year	Percent distribution of undergraduate enrollment	Percent distribution of associate's degrees conferred	Percent distribution of bachelor's degrees conferred
White, non-Hispanic			
1976-77	83.4%	84.5%	88.0%
1980-81	82.7	82.7	86.4
1988-89	80.2	82.1	84.6
1990-91	79.0	81.4	83.6
1991-92	77.9	81.0	82.9
1992-93	76.4	79.9	81.7
Black, non-Hispanic			
1976-77	10.2	8.2	6.4
1980-81	9.9	8.6	6.5
1988-89	9.4	8.0	5.7
1990-91	9.8	8.2	6.0
1991-92	10.1	8.0	6.4
1992-93	10.4	8.3	6.7
Hispanic			
1976-77	3.8	4.1	2.0
1980-81	4.2	4.3	2.3
1988-89	5.7	4.7	2.9
1990-91	6.2	5.2	3.4
1991-92	6.6	5.4	3.6
1992-93	7.2	5.9	3.9
Asian/Pacific Islander			
1976-77	1.8	1.7	1.5
1980-81	2.4	2.1	2.0
1988-89	3.9	2.9	3.7
1990-91	4.3	3.0	3.8
1991-92	4.6	3.2	4.1
1992-93	5.0	3.3	4.4
American Indian/ Alaska Native			
1976-77	0.8	0.6	0.4
1980-81	0.8	0.6	0.4
1988-89	0.8	0.8	0.4
1990-91	0.8	0.8	0.4
1991-92	0.9	0.8	0.5
1992-93	0.9	0.9	0.5

NOTE: Enrollment data were collected in the fall of the relevant academic year and include U.S. citizens only.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Fall Enrollment in Colleges and Universities," and "Degrees and Other Formal Awards," and Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment" surveys and "Completions" surveys. As published in NCES, *Digest of Education Statistics: 1995*, 1995, tables 201, 253, and 256.

NCAA graduation and persistence rates. The National Collegiate Athletic Association is one of the few organizations that collect detailed data on student graduation and persistence rates. At Division I schools,[19] the overall graduation rate was 56 percent in 1996 (figure 2-22). Only whites (59 percent) and Asian/Pacific Islanders (65 percent) surpassed this rate. For blacks, the graduation rate was 37 percent. The rate was 44 percent for Hispanics and 36 percent for American Indian/Alaska Natives.

Figure 2-22
1996 NCAA Division I graduation rates



NOTE: The graduation rate includes those who entered as freshmen in 1985-86, 1986-87, 1987-88, and 1988-89.

SOURCE: The National Collegiate Athletic Association, *1996 NCAA Division I Graduation Rates Report*, 1996, 622.

Graduation rates are not yet available for Division II and Division III schools; however, tables 2-8 and 2-9 provide measures of 1-, 2-, and 3-year persistence rates at these institutions, respectively. The persistence rates are based on a comparison of the number of students who entered the colleges and universities as first-time, full-time students in a given year and the number of those who reenrolled as full-time students in the fall of the following year. The total freshman 1-year persistence rate at Division II and Division III schools were 69 percent and 80 percent, respectively, for the 1992-93 freshman cohort. These rates were nearly identical for the 1993-94 freshman cohort (69 percent and 79 percent, respectively).

When examined by race/ethnicity, persistence rates at Division II institutions ranged from 80 percent for the 1992-93 cohort of Asian/Pacific Islanders to 53 percent for American Indian/Alaska

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[19] NCAA member institutions are divided into three categories: Division I, Division II, and Division III. These groupings are made based on individual institutional sports sponsorships, basketball and football game scheduling, and institutional criteria for awarding athletic financial aid.

Table 2-8
Persistence rates at NCAA Division II institutions for all full-time degree-seeking students, by race/ethnicity and freshman cohort

Freshman-cohort persistence rates[2,3]	Total[1]		American Indian/ Alaska Native		Asian/Pacific Islander		Black		Hispanic		White	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Freshman rates 1992-93 (1-year persistence rates)[4]												
Total	160,263	69	1,320	53	6,594	80	25,403	65	7,553	67	113,889	70
Male	73,783	67	607	52	3,191	78	11,060	63	3,501	64	52,462	67
Female	86,480	71	713	55	3,403	81	14,343	66	4,052	70	61,427	71
Freshman rates 1993-94 (1-year persistence rates)[4]												
Total	159,191	69	1,352	54	6,803	80	25,119	65	7,795	66	112,391	69
Male	72,668	67	587	53	3,243	78	10,880	62	3,623	63	51,296	68
Female	86,523	71	765	55	3,560	81	14,239	68	4,172	69	61,095	71
Freshman rates 1991-92 (2-year persistence rates)[4]												
Total	157,961	56	1,282	39	6,544	68	25,324	52	7,439	53	112,095	57
Male	72,684	53	553	34	2,924	66	10,975	50	3,308	50	52,036	54
Female	85,277	58	729	42	3,620	70	14,349	54	4,131	55	60,059	59
Freshman rates 1991-92 (3-year persistence rates)[4]												
Total	149,121	50	1,151	33	5,715	61	23,881	45	6,770	45	106,411	51
Male	68,693	48	499	31	2,713	60	10,341	43	3,033	44	49,279	49
Female	80,428	52	652	34	3,002	62	13,540	47	3,737	47	57,132	53

[1] Total includes persons of "other" race/ethnicity.

[2] A persistence rate is based on a comparison of the number of students who entered a college or university as first-time, full-time students in a given year and the number of those who reenrolled as full-time students in the fall of the following year.

[3] The persistence rates for the freshman cohort show the persistence rates for men/women who entered as freshmen in 1991-92, 1992-93, and 1993-94. The totals for 1991-92, 1992-93, and 1993-94 are the rates for men and women combined.

[4] Based on 247 Division II institutions.

SOURCE: The National Collegiate Athletic Association, *1994 NCAA Division II and III Enrollment and Persistence Rates Report*, 1994, p. 12; and *1995 NCAA Divisions II and III Enrollment and Persistence Rates Report*, 1995, p. 12.

Table 2-9
Persistence rates at NCAA Division III institutions for all full-time degree-seeking students, by race/ethnicity and freshman cohort

Freshman-cohort persistence rates[2,3]	Total[1]		American Indian/ Alaska Native		Asian/Pacific Islander		Black		Hispanic		White	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Freshman rates 1992-93 (1-year persistence rates)[4]												
Total	157,144	80	507	68	9,380	85	10,399	73	7,828	75	123,386	81
Male	71,109	78	220	61	4,425	85	4,071	71	3,156	74	56,481	79
Female	86,035	81	287	72	4,955	86	6,328	75	4,672	76	66,905	82
Freshman rates 1993-94 (1-year persistence rates)[5]												
Total	163,689	79	520	67	9,649	85	10,300	75	9,157	75	126,217	79
Male	74,893	77	263	67	4,609	85	4,026	71	3,704	72	58,145	78
Female	88,796	80	257	68	5,040	85	6,274	77	5,453	77	68,072	81
Freshman rates 1991-92 (2-year persistence rates)[4]												
Total	153,341	68	547	51	8,675	75	9,877	59	8,849	57	119,544	70
Male	70,290	68	218	53	4,082	75	3,957	57	3,652	56	55,509	69
Female	83,051	69	329	50	4,593	75	5,920	61	5,197	58	64,035	71
Freshman rates 1991-92 (3-year persistence rates)[5]												
Total	157,856	65	551	47	8,997	71	10,073	53	8,653	53	122,196	66
Male	72,989	63	225	48	4,294	70	4,069	49	3,588	50	56,963	64
Female	84,867	66	326	47	4,703	72	6,004	55	5,065	55	65,233	67

[1] Total includes persons of "other" race/ethnicity.

[2] A persistence rate is based on a comparison of the number of students who entered a college or university as first-time, full-time students in a given year and the number of those who reenrolled as full-time students in the fall of the following year.

[3] The persistence rates for the freshman cohort show the persistence rates for men/women who entered as freshmen in 1991-92, 1992-93, and 1993-94. The totals for 1991-92, 1992-93, and 1993-94 are the rates for men and women combined.

[4] Based on 346 Division III institutions.

[5] Based on 355 Division III institutions.

SOURCE: The National Collegiate Athletic Association, *1994 NCAA Division II and III Enrollment and Persistence Rates Report*, 1995, p. 15; and *1995 NCAA Division II and III Enrollment and Persistence Rates Report*, 1995, p. 15.

Natives. At the same institutions, the rates were similar for the 1993-94 freshman cohort. Once again, Asian/Pacific Islanders had the highest persistence rates (80 percent) and American Indian/Alaska Natives had the lowest (54 percent). This trend continued for both cohorts at Division III schools. Asian/Pacific Islanders posted the highest persistence rates (85 percent for both cohorts) and American Indian/Alaska Natives had the lowest rates (68 percent for the 1992-93 cohort and 67 percent for the 1993-94 cohort).

At both Division II and Division III institutions, 2-year persistence rates were substantially lower than 1-year rates. For example, the overall persistence rate dropped 13 percentage points at Division II schools and 12 percentage points at Division III schools. This pattern was also evident for all racial/ethnic groups at both Division II and Division III institutions.

Three-year persistence rates were lower than 2-year persistence rates at both Division II and Division III schools. This decline, however, was not as substantial as the decrease in the 1-year to 2-year persistence rates. Overall, the 3-year persistence rates were 50 percent at Division II schools and 65 percent at Division III schools. The rates dropped for every racial/ethnic group, but Asian/Pacific Islanders continued to have the highest rates (61 percent at Division II schools and 71 percent at Division III schools) and American Indian/Alaska Natives had the lowest (33 percent persisting at Division II institutions and 47 percent persisting at Division III institutions).

Consortium for Student Retention Data Exchange. Another source on retention data is the Consortium for Student Retention Data Exchange (CSRDE), established in August 1994. Its institutional members range in control, level, mission, and selectivity. Table 2-10 presents retention and graduation rates for first-time freshmen at the 123 member institutions. The overall retention rates were 79.7 percent after 1 year and 68.8 percent after 2 years. An examination by race/ethnicity revealed that Asians had the highest persistence rates for both measures, with a retention rate of 84.8 percent after 1 year and 75.1 percent after 2 years. American Indians had the lowest retention rates with 62.9 percent of students persisting to the second year and only 49.2 persisting to the third year. When retention rates were examined by sex, women had higher retention rates than men after both 1 and 2 years.

Retention rates were also studied based on institutional selectivity, control, size, and part-time enrollment. The more selective an institution, the higher its 1-year and 2-year persistence rates. For example, after 2 years, highly selective institutions had retention rates of 76.1 percent compared with 68.6 percent for selective institutions and 54.6 percent for less selective institutions. An examination by control revealed similar 1-year retention rates for

Table 2-10

Consortium for Student Retention Data Exchange (CSRDE) data on first-time freshmen by admission test scores, retention rates, graduation rates, and selected students and institutional characteristics: Fall semesters 1987-92

Cohort group	First-time freshmen		Admission test (1992)		Retention rates		Graduation rates		
	Average annual headcount	Percent	Average ACT	Average SAT	After 1 year (1987-92)	After 2 years (1987-91)	Within 4 years (1987-89)	Within 5 years (1987-88)	Within 6 years (1987)
Total	227,740	100.0%	22.7	1,017	79.7%	68.8%	28.8%	50.7%	56.1%
Selectivity									
Highly selective	89,310	39.2	24.1	1,093	85.3	76.1	34.8	59.4	64.7
Selective	94,090	41.3	22.8	995	79.8	68.6	29.5	51.3	56.4
Less selective	44,340	19.5	20.3	880	68.0	54.6	15.2	31.4	37.4
Sex									
Male	110,398	48.5	23.0	1,043	78.8	68.4	23.4	47.1	53.5
Female	117,342	51.5	22.3	990	80.5	69.3	34.0	54.0	58.4
Race									
American Indian	1,429	0.6	21.0	931	62.9	49.2	11.6	23.8	27.3
Asian	8,712	3.8	22.1	1,042	84.8	75.1	30.1	52.7	60.5
Black	15,074	6.6	19.2	872	75.7	61.8	15.5	33.2	38.6
Hispanic	9,709	4.3	20.1	906	71.2	58.9	14.8	31.9	39.1
White/Other	192,816	84.7	22.9	1,032	80.3	69.7	30.5	52.7	57.9
Control									
Public	210,421	92.4	22.7	1,019	79.7	69.0	27.5	50.1	55.7
Private	17,319	7.6	22.0	994	79.2	66.7	44.7	57.9	60.5
Percent part-time undergraduate									
Below 10 percent	68,915	30.3	23.3	1,053	85.3	76.2	42.4	64.5	68.2
10-20 percent	109,133	47.9	22.9	1,015	79.5	68.3	26.2	49.3	54.7
Above 20 percent	49,692	21.8	21.5	946	72.6	60.5	16.2	34.8	41.9
Institution size									
18,000 or more	158,775	69.7	23.3	1,037	82.0	71.8	28.8	53.0	58.7
5,000 - 17,999	53,976	23.7	21.9	970	75.1	63.3	27.7	44.8	49.9
Fewer than 5,000	14,989	6.6	20.4	937	72.1	57.6	33.2	45.5	47.8

NOTE: Data were collected from 123 institutions belonging to the Consortium for Student Retention Data Exchange.

SOURCE: Consortium for Student Retention Data Exchange, Findings of the 1994-95 CSRDE Report (summary flyer). Norman, OK: The University of Oklahoma.

public (79.7 percent) and private (79.2 percent) institutions, but greater differences after 2 years (69.0 percent and 66.7 percent, respectively). In addition, institutions with less than 10 percent of their undergraduates enrolled part time and institutions enrolling 18,000 students or more had consistently higher persistence rates than other institutions.

The CSRDE study also examined student graduation rates within 4, years, 5 years, and 6 years. Graduation rates rose substantially between 4-year completions and 5-year completions, more than doubling in some cases. Overall, the 4-year rate was 28.8 percent, the 5-year rate was 50.7 percent, and the 6-year rate was 56.1 percent. For racial/ethnic groups, Asians and whites had the highest graduation rates across all three categories, and American Indians consistently had the lowest graduation rates. Women had higher graduation rates for each measure, but the differences between graduation rates based on sex declined as the years to completion increased. For example, 4-year graduation rates were 34.0 percent for women and 23.4 percent for men. Six-year rates were 58.4 percent and 53.5 percent, respectively. Private institutions posted higher graduation rates than public institutions, although the difference in rates declined as the length of enrollment increased, moving from a 17.2 percentage point difference (4-year rates) to a 4.8 percentage point difference (6-year rates). Similar to the trend exhibited in persistence rates, more selective institutions and institutions enrolling 90 percent or more full-time students had higher graduation rates in each category. Lastly, larger institutions tended to have higher graduation rates than smaller institutions.

Retention and institutional characteristics. Studies show that retention rates among institutions are most highly correlated with the entering characteristics of students and institutional selectivity. Table 2-11 shows the variation in retention and transfer rates at higher education institutions based on institutional characteristics using data from the 1990 Higher Education Survey (HES) on retention. The first column details the percentage of fall 1988 freshmen who were reenrolled in fall 1989. The overall persistence rate was 70 percent, but this rate was highest at doctoral institutions (81 percent), private institutions (76 percent), and schools in the Northeast (76 percent). When degree completions were examined within a 6-year time frame, the overall bachelor's degree completion rate reported was 49 percent. Once again, rates were highest at doctoral institutions, private institutions, and schools in the Northeast. The percentage of freshmen ultimately graduating from the institution in which they first enrolled was reported as 48 percent. Since these rates only include first-time, full-time freshmen who graduated from the institution in which they initially enrolled, they may understate retention within higher education as a whole. For example, these retention rates do not include students who transferred into an institution and ultimately received a degree.

Retention rates also differ significantly depending on institutional admissions policy and the academic ability of incoming students (table 2-12). Among open admissions schools, the percentage retained to the second year was 56 percent compared with 78 percent among school with no open admissions policy. Retention rates at institutions enrolling significant percentages of academically

Table 2-11
Retention and transfer rates at higher education institutions, by institutional characteristic

Institutional characteristic	Freshmen in fall 1988 who were enrolled in fall 1989	Freshmen in fall 1984 who completed bachelor's degree by 1989-90[1]	Freshmen who ultimately graduated from institution[1,2]		First entered institution through transfer
			Comparable to preceding column[3]	All institutions	
	(Percent of full-time, first-time freshmen)				(percent)
Total[4]	70%	49%	53%	48%	16%
Type					
Doctoral	81	57	59	59	16
Comprehensive	74	42	47	48	19
Baccalaureate	75	51	53	52	12
Two-year	58	--	--	33	16
Control					
Public	68	45	50	44	18
Private	76	56	61	60	12
Enrollment size					
Less than 1,000	63	35	46	44	15
1,000 - 4,999	66	51	55	45	17
5,000 or more	74	50	53	50	16
Region					
Northeast	76	56	61	54	11
Central	69	52	55	52	15
Southeast	68	42	48	43	18
West	66	44	51	44	21

-- Too few cases for a reliable estimate.

[1] Retention rates were only calculated for first-time, full-time freshmen graduating from the institution in which they initially enrolled.

[2] This measure was typically based on estimates, rather than precise statistics. It is retained because it received a higher response rate than the 6-year baccalaureate completion rate. Respondents include schools granting 2-year degrees as well as those granting baccalaureate degrees.

[3] Calculated only for schools for which a 6-year baccalaureate completion rate was available. Does not include schools granting only 2-year degrees.

[4] Includes specialized institutions. Specialized institutions are not listed separately because there are too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, Higher Education Surveys, *Survey on Retention at Higher Education Institutions* (HES 14), 1991 (survey conducted in 1990), table A-2.

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Table 2-12
Retention at higher education institutions, by institution selectivity and by admissions

Selectivity/admissions/characteristic	Freshmen in fall 1988 who were enrolled in fall 1989	Freshmen in fall 1984 who completed bachelor's degree by 1989-90	Freshmen who ultimately graduated from institution
Selectivity	(Percent of full-time, first-time freshmen)		
Mean SAT score (verbal) of entering freshmen			
Below median	70%	37%	42%
Above median	84	62	64
Mean SAT score (math) of entering freshmen			
Below median	70	34	40
Above median	82	60	62
Mean composite ACT score of entering freshmen			
Below median	62	32	37
Above median	76	51	55
Percent of entering freshmen in top 25 percent of high school class			
Below median	65	32	38
Above median	79	55	58
Mean high school grade point average			
Below median	66	35	37
Above median	79	51	55
Admissions process			
Type of admissions			
Open admissions for all students	56	--	32
Open admissions for some students	73	40	48
No open admissions	78	53	57
Procedures at institutions without open admissions for all students			
Sometimes waive admissions standards			
Yes	78	50	54
No	75	50	55
Set standards to assure academic success			
Yes	77	51	55
No	--	--	--
Consider nonacademic factors			
Yes	79	56	59
No	75	45	51
Accept marginal students			
Yes	76	48	53
No	79	57	59
Try to increase retention through admissions			
Yes	78	52	55
No	72	44	49

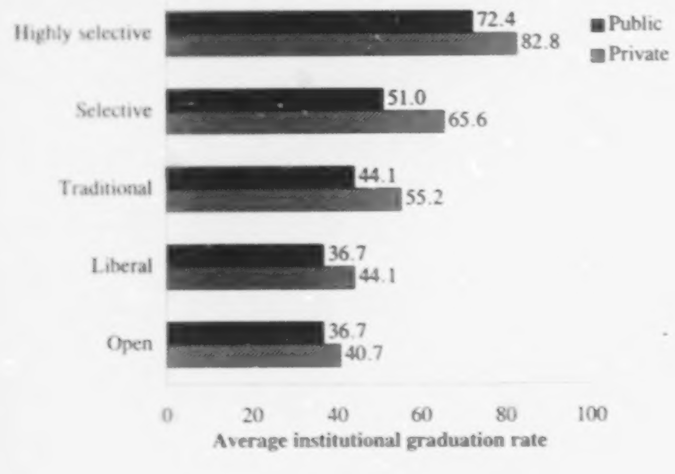
-- Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, Higher Education Surveys, *Survey on Retention at Higher Education Institutions* (HES 14), 1991 (survey conducted in 1990), tables A-6 and A-7.

disadvantaged students were lower than those at institutions whose students performed above the mean on standardized tests or had higher than average high school grade point averages (GPAs). For example, in those schools with mean SAT verbal scores above the median, the percentage of students ultimately graduating was 64 percent compared with 42 percent for those with mean SAT verbal scores below the median. At institutions where high school GPAs were above average, 55 percent of the 1988-89 freshmen graduated compared with 37 percent where high school GPAs were below average. A similar relationship held for mean SAT math scores and mean composite ACT scores.

Figure 2-23 describes graduation rates based on both the academic selectivity and control of the institution. The results showed that higher levels of academic selectivity were associated with higher graduation rates for public and private schools. Graduation rates ranged from 82.8 percent for highly selective private institutions (i.e., institutions where a majority of accepted freshmen were in the top 10 percent of their high school graduating class) to 36.7 percent for public schools having open admissions policies (i.e., all high school graduates are accepted based on space availability). At each academic selectivity level, private institutions had higher graduation rates than public institutions.

Figure 2-23
Institutional graduation rates for institutions that award bachelor's degrees, by academic selectivity and control: 1995



NOTE: These graduation rates were reported by 2,444 public and private colleges and institutions to the American College Testing Program. The rates were calculated at 3 years for associate's-degree-granting institutions and 5 years for bachelor's-degree-granting institutions.

SOURCE: "Postsecondary Education Opportunity," The Mortenson Research Letter on Public Policy Analysis of Opportunity for Postsecondary Education, No. 45, March 1996 (Iowa City, IA).

HIGHER EDUCATION CHANGES

In addition to changes in economic and educational indicators, there have been two significant changes in the composition of U.S. higher education that are relevant to the role of the federal SSS program. During the past three decades, local 2-year community colleges with a dedication to open access and lifelong learning have been playing a larger role in postsecondary education. In addition, college campuses at both the 2-year and 4-year levels have expanded their offerings of developmental programs and student services.

Growth in 2-year enrollments. In 1965, 24.1 percent of first-time freshmen attended public 2-year institutions. By 1993, enrollment at these institutions included 45.0 percent of all first-time freshmen.[20] Of students attending all 2-year institutions, 86.8 percent attended public institutions in 1965 and 92.3 percent attended public institutions in 1993. Freshman enrollment at public 2-year institutions increased by 199 percent between 1965 and 1989, and enrollment in private 2-year schools rose by 166 percent. Overall, freshman enrollment increased 63 percent during this time period compared with a 19 percent increase at 4-year public institutions and a 3 percent increase at private 4-year institutions.[21]

Two-year institutions often serve as the primary source of postsecondary education for low-income and academically challenged students, but overall completion rates at these institutions are low. A cohort of 1980 high school sophomores were surveyed in 1992 to examine their educational progress (table 2-13). Only 24.4 percent of those who originally enrolled as full-time students in 2-year colleges had completed an associate's degree. Many students (26.9 percent), however, changed academic programs and received a bachelor's degree or higher, but 48.7 percent did not earn a postsecondary degree.

An examination by 1980 socioeconomic status shows that only 14.1 percent of students in the lowest income quartile completed an associate's degree or higher. Students in the middle two quartiles completed associate's degrees or higher at a rate of 30.7 percent. For students in the highest income quartile, 58.9 percent completed postsecondary degrees. The highest percentage of the degrees earned by low-income students was at the associate's level compared with the bachelor's degree level for students in the middle two and higher income quartiles.

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[20] Private 2-year institutions are not included in this historical comparison as a change in reporting techniques made pre-1990 data incomparable with more recent data.

[21] U.S. Department of Education, National Center for Education Statistics, *Fall Enrollment in Higher Education*, various years, "Fall Enrollment in Colleges and Universities" survey, and Integrated Postsecondary Data System (IPEDS), "Fall Enrollment" surveys. As published in NCES, *Digest of Education Statistics: 1995*, 1995, table 175.

Table 2-13

Percent distribution of 1980 high school sophomores, by highest level of education completed through 1992, by selected student characteristics: 1980 to 1992

Student characteristic	All 1980 sophomores	Less than high school	High school	Certificate	Associate's degree	Bachelor's degree	Master's degree	Professional degree	Doctor's degree
					(Highest level in 1992)				
Type of start in postsecondary education									
Fall 1982 full-time 4-year	100.0%	NA	21.2%	3.5%	4.6%	57.8%	9.0%	3.4%	0.5%
Fall 1982 full-time public, 2-year	100.0%	0.3	36.5	11.9	24.4	24.6	2.1	0.2	NA
Fall 1982 part-time 4-year	100.0	NA	32.2	6.7	10.0	27.2	3.5	0.1	0.4
Fall 1982 part-time public, 2 year	100.0	1.6	59.5	13.4	9.4	14.4	0.9	0.8	NA
Socioeconomic status (1980)									
Low quartile	100.0	9.0	64.6	12.3	6.9	6.4	0.7	0.1	NA
Middle two quartiles	100.0	3.9	53.8	11.5	9.1	19.0	2.0	0.5	0.1
High quartile	100.0	1.4	32.7	7.0	7.6	41.2	6.9	2.7	0.5
Test score composite (1982)									
Low quartile	100.0	15.6	64.0	13.0	4.1	3.0	0.2	NA	0.1
Middle two quartiles	100.0	3.1	56.2	12.8	10.1	16.1	1.5	0.3	NA
High quartile	100.0	0.1	26.5	4.8	7.2	49.2	8.7	3.0	0.6

NA - Data not applicable or not available.

NOTE: Because of rounding, percents may not add to 100.

SOURCE: National Center for Education Statistics, *High School and Beyond, Educational Attainment of High School Sophomores by 1992.* As published in NCES, *Digest of Education Statistics: 1995*, 1995, table 299.

A similar comparison can be made by looking at test score composites from 1982. Only 7.4 percent of students testing in the lowest quartile earned an associate's degree or higher. Of the middle two quartiles, 28.0 percent earned an associate's degree or higher. In the highest quartile, 68.7 percent earned postsecondary degrees. Once again, students in the lowest quartile earned the majority of their degrees at the associate's level, while students in the remaining quartiles earned the majority of their degrees at the bachelor's level.

Growth in developmental education on college campuses. Since the 1960s, there has also been considerable growth in the developmental, or remedial, education offered on both 2-year and 4-year campuses, as well as increased numbers of counseling and learning center services. While this is not an entirely new phenomenon,[22] from 1920 until the late 1960s college preparation and remediation were tasks generally assigned to 2-year colleges. By 1970, various factors, including changing enrollment patterns of entering freshmen, a decline in high school achievement levels, and transition to open admissions policies at many institutions, resulted in a new focus on remediation at both 2- and 4-year institutions.

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[22] In 1894, over 40 percent of entering students in American colleges were preparatory students. California Postsecondary Education Commission, *Promises to Keep: Remedial Education in California Colleges and Universities*, Sacramento, CA, 1983.

When the SSS program was implemented in 1970, few 4-year colleges offered developmental or remedial programs. During the 1983-84 academic year, estimates were made of the percentage of entering freshmen needing remedial education. Institutional respondents calculated that about 29 percent of freshmen needed remedial reading, 32 percent needed remedial writing, and 37 percent needed remedial math. In open admissions schools, these measures ranged from 32 percent needing remedial reading to 42 percent needing remedial math.[23] By the 1989-90 academic year, 74 percent of postsecondary institutions offered one or more remedial courses in either reading, writing, or math.

Approximately 30 percent of all entering freshmen that year enrolled in at least one remedial reading, writing, or math class—21 percent in remedial math, 16 percent in remedial writing, and 13 percent in remedial reading. Of entering freshmen that year, 55 percent of all minority students enrolled in at least one remedial class compared with 27 percent of all nonminority students.[24] Self-reported student data collected through the National Postsecondary Student Aid Study (NPSAS), however, showed that only 13 percent of all undergraduates were enrolled in remedial education during the 1992-93 academic year. Of these, 56 percent were freshmen, 24 percent were sophomores, 9 percent were juniors, and 9 percent were seniors.[25]

In addition, systemwide state equal educational opportunity programs providing funding for student support activities have also grown. By 1987, highly developed programs were present in at least 10 states according to a joint report of the State Higher Education Officers and the Education Commission of the States.

Student Support Services funding. Table 2-14 shows total SSS funding and participation by state for 1994-95. Although every state has some SSS programs, participation levels and financial expenditures vary due to state demographics, such as the number of historically black colleges and universities, the size of the student population, and the presence of state service support and financial aid programs. Large states, while receiving the largest allocations, rank low in SSS funding considered as a percentage of total student

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[23] U.S. Department of Education, Office of Educational Research and Improvement, Fast Response Survey System, "College Level Remediation," FRSS 19, 1986.

[24] U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, College-*Level Remedial Education in the Fall of 1989, FRSS 38, 1991. As published in NCES, College-Level Remedial Education in the Fall of 1989*, 1991, tables 1 and 3.

[25] Knopp, L. "Remedial Education: An Undergraduate Student Profile." *Research Briefs*, Vol. 6, No. 8. Washington, DC: American Council on Education, 1995.

Table 2-14
SSS funding and participation, by state: 1994-95

State	Funding per participant (in dollars)	Total state award (in dollars)	Total number of participants
Total	**$867**	**$143,543,694**	**165,561**
Guam	$1,841	$349,828	190
Virgin Islands	1,751	175,100	100
American Somoa	1,133	170,000	150
Other U.S. territories[1]	1,121	532,665	475
New Hampshire	1,066	570,143	535
North Carolina	1,056	5,563,216	5,268
Georgia	1,051	2,211,955	2,105
South Carolina	1,029	2,387,224	2,320
Alabama	1,026	6,972,955	6,793
Alaska	1,011	227,373	225
Washington	1,006	3,230,273	3,210
South Dakota	1,003	917,668	915
Idaho	998	788,569	[illegible]
Kentucky	987	3,119,432	3,160
Vermont	976	1,757,158	1,800
North Dakota	974	1,319,985	1,355
Mississippi	971	2,263,284	2,331
Pennsylvania	955	3,691,834	3,865
Utah	951	1,622,115	1,706
Oregon	942	1,554,911	1,650
Virginia	940	3,647,392	3,880
Florida	925	2,766,079	2,990
Minnesota	916	3,893,625	4,250
Tennessee	910	2,146,929	2,359
Montana	903	2,700,773	2,990
Colorado	902	2,646,808	2,935
West Virginia	901	1,648,981	1,830
Oklahoma	901	2,743,010	3,045
Maine	899	1,549,103	1,724
Maryland	892	2,802,274	3,140
Nebraska	884	1,929,759	2,184
Hawaii	875	1,085,151	1,240
New Jersey	873	2,637,115	3,020
Delaware	868	555,513	640
Iowa	861	2,627,456	3,050
Wisconsin	858	4,826,251	5,625
Michigan	856	4,147,025	4,845
Arkansas	853	3,012,606	3,531
District of Columbia	840	672,235	800
Massachusetts	840	3,491,236	4,155
Kansas	831	2,298,278	2,765
Illinois	830	5,435,530	6,548
Louisiana	826	3,392,881	4,108
Nevada	809	416,686	515
New Mexico	798	1,465,689	1,836
California	775	8,911,933	11,495
New York	773	8,260,934	10,692
Rhode Island	766	459,878	600
Missouri	757	2,305,995	3,047
Texas	750	7,149,611	9,530
Ohio	749	2,839,950	3,790
Arizona	736	1,522,564	2,068
Puerto Rico	731	4,736,387	6,475
Wyoming	705	486,392	690
Connecticut	700	566,660	810
Indiana	685	2,339,317	3,416

[1] This includes the College of the Marshall Islands, Micronesian Occupational College, and Northern Marianas College.

NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, Division of Student Services, Student Support Services, unpublished data, 1996.

enrollment. A total of 165,561 postsecondary students were served by SSS programs in 1994-95. Total SSS program funding was $143,543,694, with California and New York receiving the largest funding allocations. Chapter 4 provides a more detailed statistical examination of the SSS program.

IMPLICATIONS FOR THE SSS PROGRAM

An examination of economic data has shown that the number of low-income families has risen over the past three decades in conjunction with increasing income disparity. At the same time, the economic disadvantages of earning only a high school diploma versus a bachelor's degree have also grown. Two signs of positive improvement, however, have been higher high school graduation rates and postsecondary enrollment rates. Growth in the latter slowed during the 1980s but has recently reentered a period of increase for most racial/ethnic groups.

The data have also shown that family income and the educational attainment level of the head of the household play a large role in determining whether a student will graduate from high school, enroll in a postsecondary institution, and ultimately receive a degree. Students from high-income households enroll, persist, and graduate at much higher rates than students from low-income families. Various studies have shown that even once enrolled in a postsecondary institution, economically and academically disadvantaged students have lower rates of persistence and graduation. Enrollment and graduation rates are also impacted by the educational attainment level of the head of the student's household. Generally, students from families where the householder earned a bachelor's degree or higher are more likely to graduate than students from families where the householder did not earn a bachelor's degree. A study conducted in 1990, however, indicated that 48 percent of the bachelor's degrees awarded that year went to first-generation college students (see figure 2-20, p. 26).

Since the 1960s, the role of 2-year institutions and remedial education programs in meeting the needs of disadvantaged students has been substantial. As the number of these students has grown, enrollments at 2-year schools have increased and remedial education programs are now available at most 2-year and 4-year institutions. There remains a continuing need to address the problem of equal opportunity in higher education and to have higher education serve economically, culturally, and academically disadvantaged youth.

3. REVIEW OF LITERATURE RELATED TO THE STUDENT SUPPORT SERVICES PROGRAM

Although the National Study of SSS specifically examines the effects of the SSS program, it is also a part of a larger literature on the determinants of college retention and completion, especially the retention of disadvantaged students. This chapter outlines that larger literature briefly, providing a context for understanding the results reported for SSS. We will note specific determinants and key theories of college retention and then look at the findings of studies that have examined support and instructional services programs for disadvantaged students. This literature review is not intended to be exhaustive, but rather to summarize and draw attention to those issues and findings of greatest relevance to the National Study of Student Support Services. To assist the reader with this overview, appendix C includes a set of four tables that correspond to the various topics discussed in the review and provide detailed summaries of individual studies.

HIGHLIGHTS

- Studies of student persistence indicated that academic factors, noncognitive issues, and student integration within the postsecondary environment are important predictors of student retention.

- Researchers found that a positive self-concept, realistic self-appraisal, ability to deal with racism, preference for long-term goals over more immediate short-term needs, availability of a strong support person, successful leadership experience, and demonstrated community service were among the noncognitive factors related to academic success.

- The following college experiences were identified by researchers as being related to persistence: the fit between the student and the institution, positive freshman-year experiences, living on campus, attending full time, effective advising, participating in campus activities, and having the friendship of at least one faculty or staff member.

- The most frequently reported explanations for student withdrawal (in order of frequency) included academic reasons, financial concerns, motivational issues, personal concerns, military service, and full-time employment. Many studies revealed that specific institutional characteristics can promote higher retention rates, including the existence of an explicit minority enrollment policy, an institutional commitment to retaining minority students, comprehensive service offerings, and a nonthreatening social environment.

- College impact models developed by Tinto, Astin, Pascarella, and Weidman state that students enter postsecondary institutions with varying characteristics, and that the interaction between these traits and the institution's characteristics and environment affect the student. If a strong institutional fit is forged between the student and the college, the likelihood that a student will persist and eventually earn a postsecondary degree increases.

- Researchers recommended several policies to promote academic and social integration, such as providing academic and career advising, integrating support services with department instruction, offering tutorials and skill enhancement workshops, providing orientation programs and summer bridge programs, establishing a mentoring system, and making peer counselors available to students.

- Institutional policies promoting academic and social integration and increasing the time students spend on coursework exhibited the greatest potential for positively impacting the retention of disadvantaged students.

- Among the most commonly offered and evaluated support services are advising, counseling, mentoring, study skills courses, developmental courses, tutoring, and supplemental instruction.

- In previous studies, differences in persistence and GPA outcomes between students receiving and not receiving SSS and SSS-like services, when they have been found, have been small and to some extent inconsistent.

INDIVIDUAL DETERMINANTS OF RETENTION

Over the past several decades, a great deal of attention has been paid to the individual characteristics of students when they enter college that can predict whether a student will complete school. This literature is well known and plays an important role in the admissions policies of some institutions across the country. Summarized briefly, factors reflective of past academic success and preparation such as high school grade point average (GPA), class rank, Scholastic Aptitude Test (SAT) scores, and completion of a college preparatory curriculum have consistently been found to be highly related to college success.

Researchers continue to disagree, however, over the relative importance of these factors and their applicability for poor and minority populations in predicting persistence (Cross and Astin, 1981). Specifically, researchers have found that traditional predictors of academic success are not necessarily accurate as determinants of academic achievement for high-risk students. For example, Abrams and Jernigan (1984) examined the use of academic support services and their impact on high-risk students. They found that predictions of students' college GPAs based on their entrance test scores and high school GPAs were not highly correlated with college GPAs.

Other researchers have noted that noncognitive dimensions are as important or more important to college success than are the traditional academic dimensions, especially for disadvantaged students (Astin, 1975; Tinto, 1975; Sedlacek and Brooks, 1976). Sedlacek and Brooks identified seven noncognitive variables that are related to academic success: (1) positive self-concept, (2) realistic self-appraisal; (3) understanding of and ability to deal with racism; (4) preference for long-term goals over more immediate, short-term needs; (5) availability of a strong support person; (6) successful leadership experience; and (7) demonstrated community service. Tracy and Sedlacek (1985) developed the Non-Cognitive Questionnaire (NCQ) to assess these dimensions, and they subsequently have found that the NCQ was content valid and more predictive of first- and third-semester GPAs for both whites and blacks than were SAT scores. The NCQ was highly predictive of black students' persistence after three semesters.

In addition, once students arrive at college, specific on-campus behaviors have been found to be associated with college persistence toward graduation (Astin, 1975; Beal and Noel, 1980; Lenning, Beal, and Sauer, 1980; Webb, 1987). These factors include

- Receiving effective academic and career advising;
- Living on campus;
- Participating in campus activities;
- Having the friendship of at least one faculty or staff member;
- Making the proper institutional fit;
- Attending full time;
- Interacting frequently with students, faculty, and staff; and
- Making progress toward a goal.

One way to address completion is to observe the specific reasons for student withdrawal. Pantages and Creedon (1978) examined 100 studies and found the following reasons for student withdrawal (in order of frequency): academic matters, financial difficulties, motivational problems, personal considerations, dissatisfaction with college, military service, and taking a full-time job. Some students face only one or two of these difficulties, but for economically, academically, and/or culturally disadvantaged students these barriers may build upon one other, effectively creating a cumulative brick wall that blocks school completion.

INSTITUTIONAL DETERMINANTS OF RETENTION

In addition to what the student brings to college and his or her on-campus behavior, the policies and practices that colleges adopt play a role in retention. Many studies have focused specifically on institutional conditions that give rise to higher retention rates for disadvantaged students. Several such studies are described in this section.

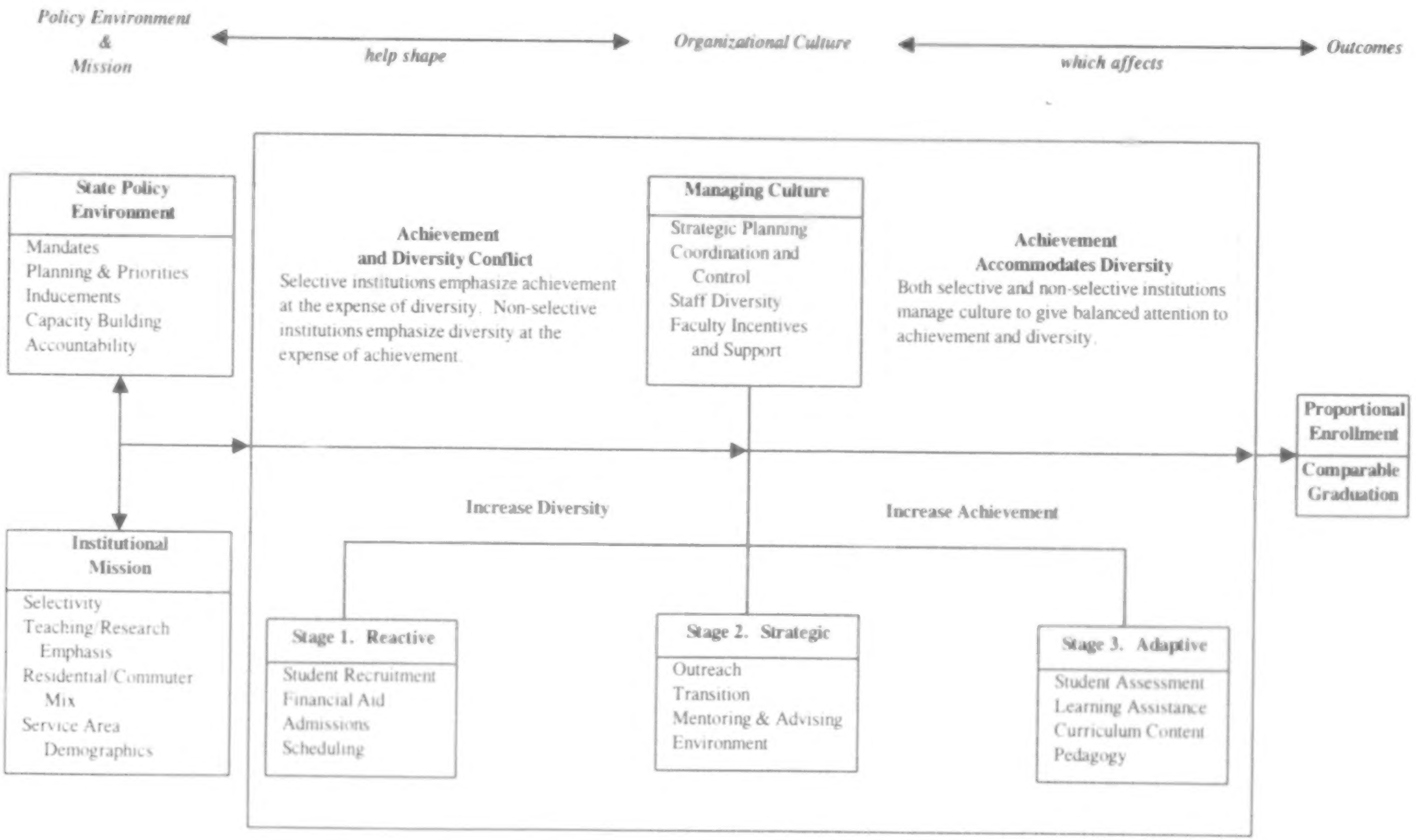
Clewell and Ficklen. Clewell and Ficklen (1986) selected institutions for a study of exemplary retention programs using two approaches: (1) a linear regression model designed to choose schools with higher than expected minority student retention, and (2) expert recommendations. Relying more heavily on the expert recommendations, four schools were selected and studied in depth, revealing several common institutional characteristics, including

- An explicit minority enrollment policy;
- A high level of institutional commitment;
- A substantial degree of program institutionalization;
- Comprehensive service offerings;
- Dedicated staff;
- Systematic data collection;
- Monitoring and followup;
- Strong faculty support; and
- Nonstigmatization of participants.

Richardson. Richardson, Simmons, and de los Santo (1987) conducted a study of 10 predominantly white institutions that have achieved success in graduating minority students. Following this study, Richardson (1989) identified exemplary institutions based on the differences in their white and minority graduation rates and the changes these institutions have experienced in enrollment and graduation rates. Exhibit 3-1 shows the model of adaptation to student diversity developed by Richardson. This model notes the potential or perceived conflict between institutional achievement goals and diversity goals, and suggests that institutional cultures be managed in such a way as to give equal attention to both. The model also points to 10 principles institutions can apply to increase minority retention rates. The 10 principles are as follows:

- Set (and announce) institutional priorities (eliminating racial and ethnic disparities);
- Back institutional priorities (spend money to recruit, retain, and graduate minority students);
- Employ minority leaders (to send a clear message about the value of cultural diversity);
- Reach out to community schools, agencies, and businesses (a community-wide effort can raise minority students' aspirations and academic preparation);
- Track progress;
- Provide comprehensive support services;
- Emphasize quality (with plenty of diversity);
- Bridge the educational gaps (with such bridge programs as extended classes covering required materials, tutoring, learning laboratories, collaborative study groups, and intrusive advising);
- Reward good teaching and diversify faculty (cultivating minority professors by mentoring graduate students or junior faculty members); and
- Construct a nonthreatening social environment (with no incidents of racism).

Exhibit 3-1. A model of institutional adaptation to student diversity[1]


Policy Environment & Mission
help shape
Organizational Culture
which affects
Outcomes
State Policy Environment
Mandates
Planning & Priorities
Inducements
Capacity Building
Accountability
Achievement and Diversity Conflict
Selective institutions emphasize achievement at the expense of diversity. Non-selective institutions emphasize diversity at the expense of achievement.
Managing Culture
Strategic Planning
Coordination and Control
Staff Diversity
Faculty Incentives and Support
Achievement Accommodates Diversity
Both selective and non-selective institutions manage culture to give balanced attention to achievement and diversity.
Proportional Enrollment
Comparable Graduation
Increase Diversity
Increase Achievement
Institutional Mission
Selectivity
Teaching/Research Emphasis
Residential/Commuter Mix
Service Area Demographics
Stage 1. Reactive
Student Recruitment
Financial Aid
Admissions
Scheduling
Stage 2. Strategic
Outreach
Transition
Mentoring & Advising
Environment
Stage 3. Adaptive
Student Assessment
Learning Assistance
Curriculum Content
Pedagogy

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[1] Student diversity has three major dimensions: (1) preparation, (2) opportunity orientation, and (3) model of college going. Blacks, Hispanics, and American Indians share these dimensions with other groups, but are distributed differently as a function of historic discrimination and socioeconomic status.

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Courtland. Many of Richardson's principles were supported in Courtland's (1991) review of issues related to the recruitment and retention of underrepresented students in higher education. In addition, Courtland suggested that institutions should recognize differences in cognitive and noncognitive learning styles between underrepresented and majority students and encourage the rethinking of curricula to meet the needs of underrepresented populations.

Valverde. Another approach to institutional analysis is that advanced by Valverde (1986). He provided a three-tier typology of retention intervention strategies for low-income students. Type I or need-specific interventions are characteristic of those strategies that focus on one or more student needs, such as recruitment, admission, and orientation. Type II interventions are comprehensive strategies grounded in research on high-risk students that simultaneously consider, in a well coordinated manner, multiple factors such as academic adjustment, financial aid, cultural fit, and alienation. Type III interventions, or systemic solutions, are campus-wide institutional actions whereby high ranking officials demonstrate their commitment to improving minority student recruitment and retention through a clearly articulated mission statement. A similar model addressing institutional readiness for alterations in retention efforts has been articulated by Smith, Lippitt, and Sprandel (1985).

Edmonds and McCurdy. Edmonds and McCurdy (1988) presented a student-focused model for retention based on student characteristics, academic and social integration, institutional commitment, and institutional interventions (see exhibit 3-2). It begins with a student profile (e.g., gender, academic level, and parent's education), examines student integration into the higher education environment, and studies the resulting student outcomes.

Studies on supportive environment. In addition, other researchers have stressed that the most important precursor of effective retention is a supportive and encouraging environment to counteract obstacles such as ethnic isolation and alienation (Landis, 1985). Miles and McDavis (1982) studied the impact of four different orientation approaches used to inform disadvantaged students about a university counseling center. They felt that black students, in particular, should be aware of services available to them during the difficult college adjustment period. Pulliams (1988) discussed several strategies counselors should follow to increase minority student retention. Among these are establishing a minority mentoring program and using minority student peers to assist with orientation. In addition, Fox (1985) determined that persistence was directly related to academic and social integration and intention. Thus, these researchers have argued, it is crucial that a supportive environment exists to facilitate student integration, but also that this supportive environment be established as early as possible during a student's college experience.

THEORETICAL FRAMEWORKS FOR THE STUDY OF RETENTION

Beyond studies of specific factors, there is a growing literature that attempts to weave what has been learned about determinants of retention into a larger story of why some students complete college while others do not.[1] In this section four well-known college impact models are considered: (1) Tinto's model of student departure, (2) Astin's input-environment-outcome (I-E-O) model, (3) Pascarella's general model for assessing change, and (4) Weidman's model of undergraduate socialization. Each is based upon the assumption that students enter college with a specific set of characteristics and traits.

Tinto's theory of student departure. Tinto's theory of student departure seeks to explain college student attrition. Students enter postsecondary institutions with various patterns of personal, family, and academic characteristics and goals. The college environment they enter comprises the university's mission, administration, staff/faculty, facilities, student support services, and quality of the student-instructor and student-student interactions (Ponce, 1988). The greater the compatibility between the student and the institution, the higher the probability that the student will continue.

Compatibility is explained by two key concepts: academic integration and social integration. Pascarella and Terenzini (1991) stated that, "integration refers to the extent to which the individual shares the normative attitudes and values of peers and faculty in the institution and abides by the formal and informal structural requirements for membership in that community..." When integration fails to occur, the likelihood that students will fail to complete their degrees increases. According to Tinto (1975), when individuals do not experience sufficient academic integration, feelings of personal incongruence based on their perceptions of not fitting within the institution may evolve. In addition, an individual may also feel isolated from academic experiences that would foster integration into the college system. These feelings can increase the likelihood that the student will withdraw from the institution. Other research (Spady, 1971; Bean, 1980; Cabrera et al., 1992) also supports this conclusion.

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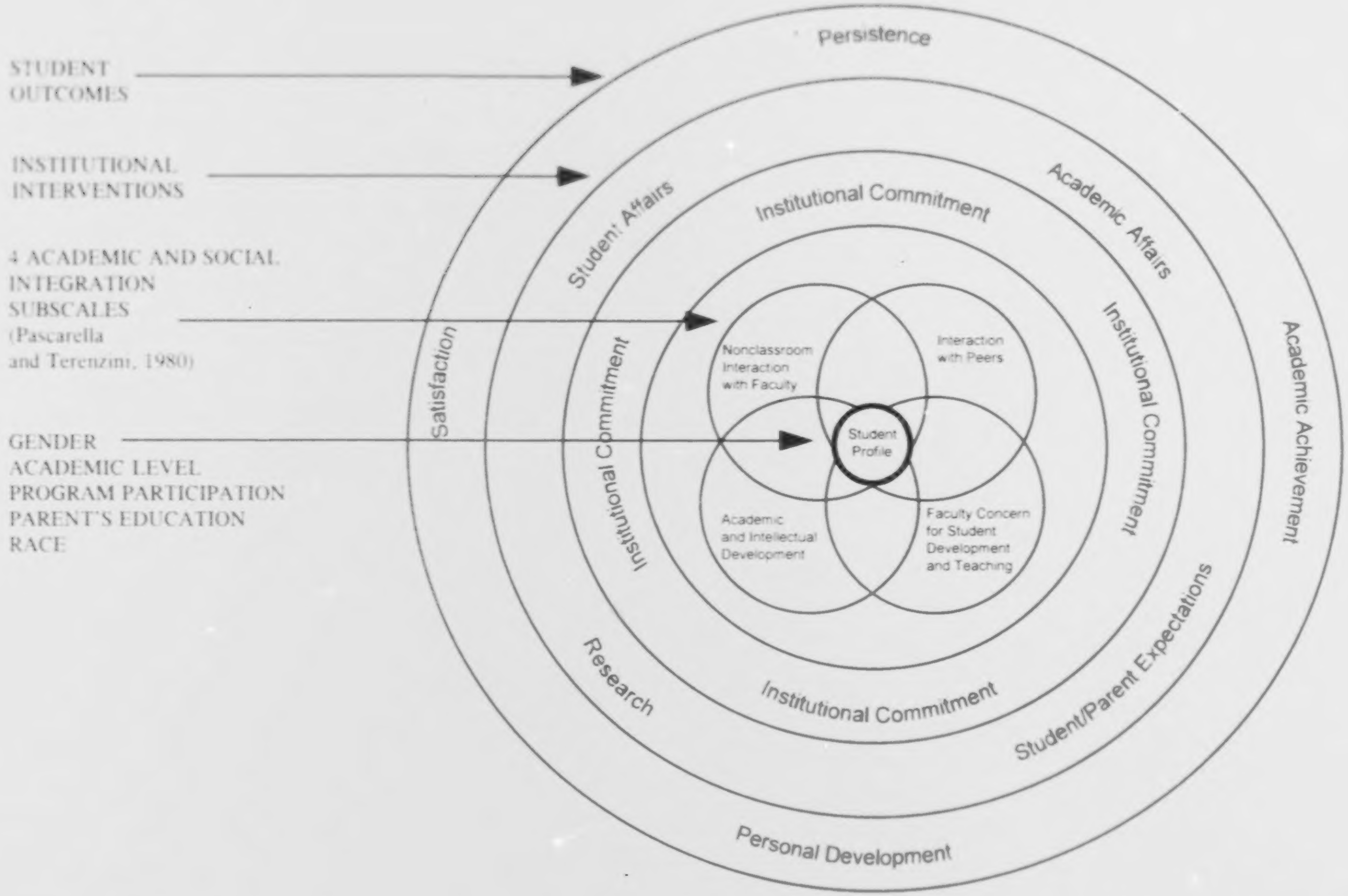
[1] Information for this section draws heavily from three sources: *How College Affects Students* (Pascarella and Terenzini, 1991); *From Survival to Success*, a monograph series edited by Terrell and Wright (1988); and *What Matters in College: Four Critical Years Revisited* (Astin, 1993).

Exhibit 3-2. Student-focused model for retention programs


STUDENT OUTCOMES
INSTITUTIONAL INTERVENTIONS
4 ACADEMIC AND SOCIAL INTEGRATION SUBSCALES (Pascarella and Terenzini, 1980)
GENDER
ACADEMIC LEVEL
PROGRAM PARTICIPATION
PARENT'S EDUCATION
RACE
Persistence
Satisfaction
Academic Achievement
Personal Development
Student Affairs
Academic Affairs
Research
Student/Parent Expectations
Institutional Commitment
Institutional Commitment
Institutional Commitment
Institutional Commitment
Nonclassroom Interaction with Faculty
Interaction with Peers
Academic and Intellectual Development
Faculty Concern for Student Development and Teaching
Student Profile

Source: Edmonds, M.N., and McCurdy, D.P. (1988). Academic Integration: Tools for Minority Retention, in *From Survival to Success*, eds. M.C. Terrell and D.J. Wright, 55-71. National Association of Student Personnel Administrators, Monograph Series, p. 59.

Exhibit 3-3 shows Tinto's model of student departure. This model and other related models stress the relationships between college persistence and commitment to the institution, first semester GPAs, use of campus facilities, informal contacts with faculty, feelings of alienation, environmental congruence, developing coping strategies, external commitments, career goals, and aspirations (Tinto, 1987; Edmonds and McCurdy, 1988).[2] These models have received support from several studies including those conducted by Terenzini and Pascarella (1977), Terenzini, Lorang, and Pascarella (1981), Williamson and Creamer (1988), and Stoecker, Pascarella, and Wolfle (1988).

Astin's I-E-O model. According to Astin (1991, 1993), the input-environment-output (I-E-O) model can be used as a conceptual framework for studying student outcomes. The model is composed of three major parts: student inputs, the college environment, and student outputs (or outcomes). Inputs are simply the characteristics students possess when they initially enter college. The environment includes the programs, policies, people (i.e., peers, faculty, and administration), and experiences to which the student is exposed. Outcomes are the "talents" being developed through educational programs and must always be evaluated in terms of inputs, just as student change or growth is measured by comparing outcome characteristics with initial characteristics. The model examines both cognitive (or intellectual) and noncognitive (or affective) outcomes using both psychological and behavioral data. Psychological data pertain to internal states and student traits, whereas behavioral (or sociological) data are related to directly observable activities. Generally, such directly observable activities involve interactions between the student and the environment.

More specifically, this model has at various times used 146 input measures, 192 environmental measures, and 82 student outcome measures (Astin, 1993). Examples of input measures include pretest results; reasons for attending college; demographic data; parents' occupation, income, and level of education; self-predications; and so forth. Environmental measures consider the student's peer group characteristics, faculty characteristics, curriculum, financial aid, freshman choice of major, residence, and student involvement. Outcomes can be divided into four major categories: (1) affective psychological data (e.g., self-concept, values, and attitudes), (2) affective behavioral data (e.g., personal habits, citizenship, and interpersonal relations), (3) cognitive

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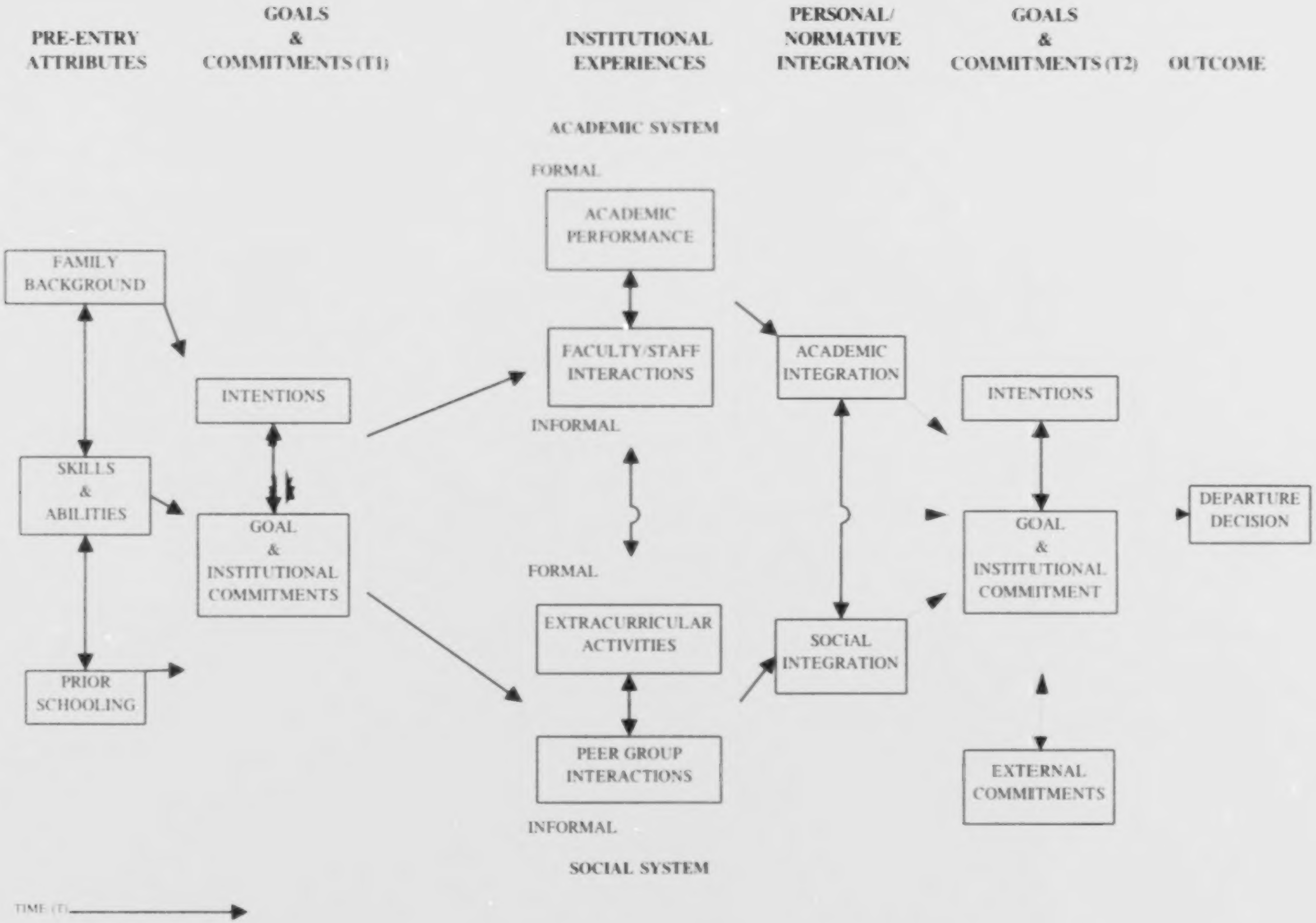
[2] Not all students leave postsecondary education permanently. Students who leave school may return later (to the same institution or another institution) and complete a postsecondary degree or certificate.

Exhibit 3-3. Tinto's model of institutional departure


PRE-ENTRY ATTRIBUTES
GOALS & COMMITMENTS (T1)
INSTITUTIONAL EXPERIENCES
PERSONAL/ NORMATIVE INTEGRATION
GOALS & COMMITMENTS (T2)
OUTCOME
ACADEMIC SYSTEM
FORMAL
ACADEMIC PERFORMANCE
FAMILY BACKGROUND
FACULTY/STAFF INTERACTIONS
ACADEMIC INTEGRATION
INTENTIONS
INTENTIONS
INFORMAL
SKILLS & ABILITIES
GOAL & INSTITUTIONAL COMMITMENTS
GOAL & INSTITUTIONAL COMMITMENT
DEPARTURE DECISION
FORMAL
EXTRACURRICULAR ACTIVITIES
SOCIAL INTEGRATION
PRIOR SCHOOLING
PEER GROUP INTERACTIONS
EXTERNAL COMMITMENTS
INFORMAL
SOCIAL SYSTEM
TIME (T)

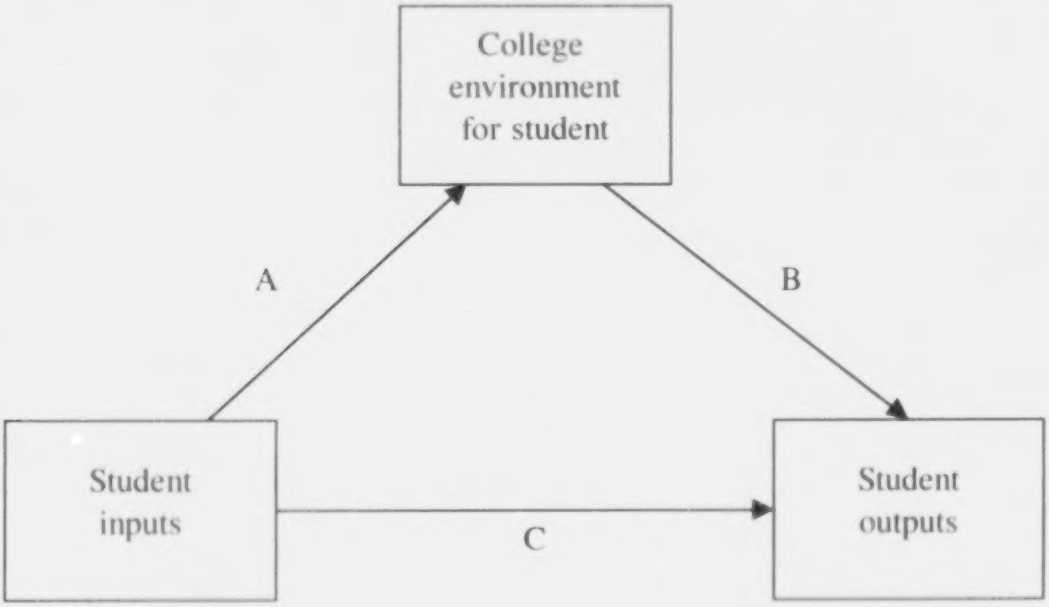
Source: Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition.* Chicago: University of Chicago Press, p. 114.

psychological data (e.g., knowledge, critical-thinking skills, and academic achievement), and (4) cognitive behavioral data (e.g., career development, level of educational attainment, and income).

Exhibit 3-4 depicts the relationship among inputs, the environment, and outcomes. Educational assessment and evaluation are primarily concerned with relationship B. This relationship, however, cannot be understood without accounting for student inputs. Student inputs, in turn, affect both the environment (relationship A) and the outcomes (relationship C). Astin (1991) described these relationships in the following way:

> "...first, that differences among students tend to show some consistency (i.e., correlation) over time (arrow C), and second, that different types of students often choose different types of educational environments (arrow B). The fact that inputs are thus related to both outputs *and* environments means that inputs can, in turn, affect the observed relationship between environments and outputs."

Exhibit 3-4. The I-E-O (input-environment-outcome) model



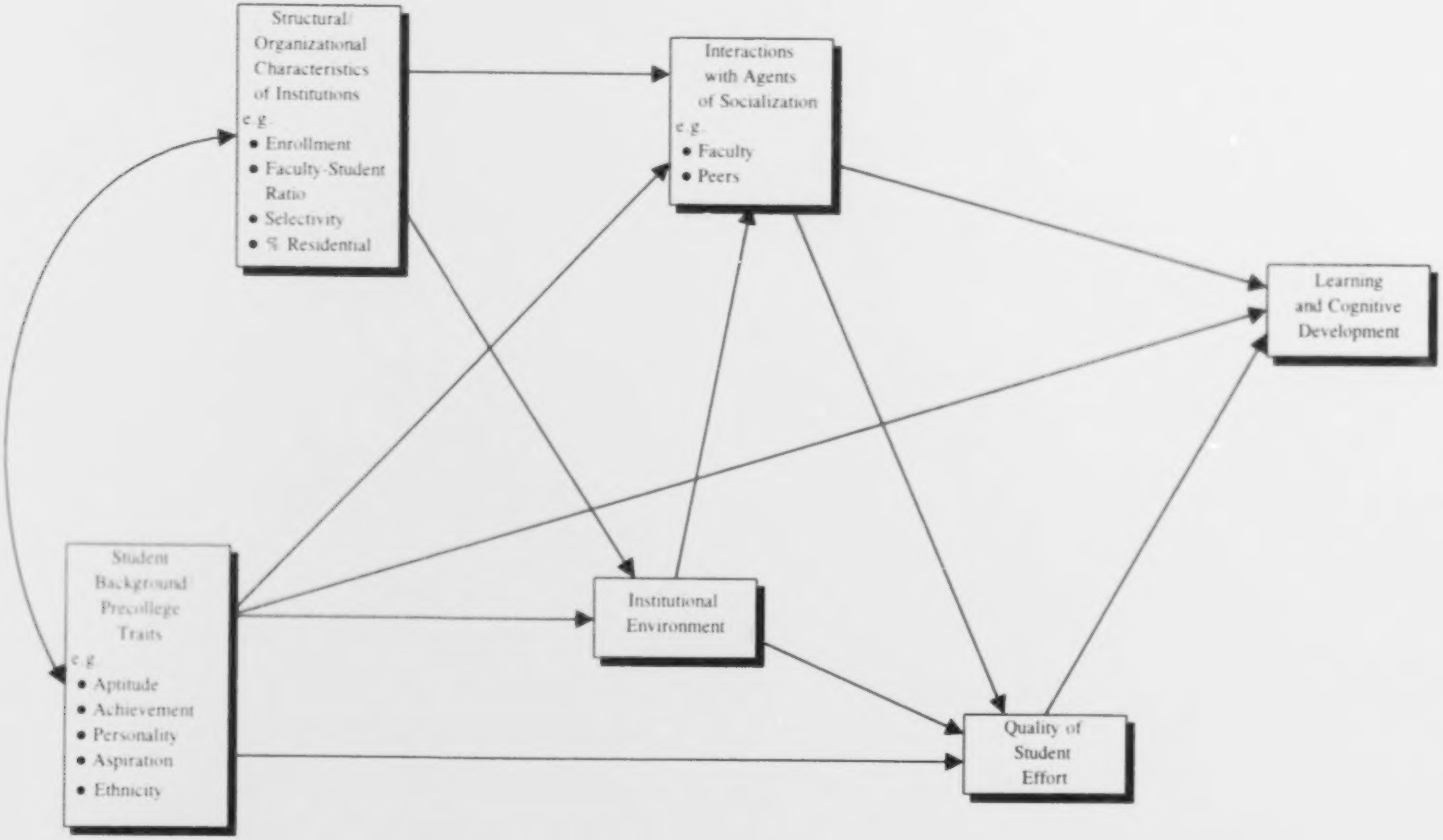
Source: Astin, A.W. (1991). *Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education.* New York: American Council for Education, Macmillan Publishing Company, p. 18.

Pascarella's general model for assessing change. As compared to Tinto's model, Pascarella's model for assessing student change is an attempt to be more specifically attentive to the nature or strength of the influences of an institution's structural/organization characteristics and to its general environment. In addition, this model can be applied to multi-institutional studies. Pascarella suggested that growth is a function of the direct and indirect effects of five major sets of variables (see exhibit 3-5). Initially, student background and precollege traits, as well as the structural/organizational characteristics of an institution, shape the institutional environment. Together, these factors affect the frequency and content of students' interactions with agents of socialization. These interactions then impact the students' learning and cognitive development as well as the quality of student effort. The latter is also affected by the institutional environment and student background/precollege traits (Pascarella and Terenzini, 1991). This last relationship bears some resemblance to Astin's I-E-O model, where inputs are directly related to student outcomes.

Weidman's model of undergraduate socialization. Weidman's model seeks to combine both psychological and sociological influences on student change while also incorporating noncognitive changes and the socialization process. Like Tinto and Pascarella, Weidman assumed that students enter college with specific student characteristics and traits, but he also included normative pressures stemming from both parents and other nonreference groups as an initial entrance factor (see exhibit 3-6). These normative factors continue to play a socialization role during the college years.

As described by Weidman and reported in Pascarella and Terenzini (1991), these initial characteristics and shaping forces "constitute predisposing and, to a certain extent, constraining forces on students' choices within the college's structural and organizational settings." These contexts provide the mechanism through which students are exposed to normative pressures. Encounters can be social or academic, and pressures may be exerted through interpersonal interaction, intrapersonal processes, and/or social and academic integration. In addition, Weidman maintained that the socialization process allows students to interact with normative influences in order to achieve personal goals. This model is the most recent of the college impact models discussed in this review, and its utility and validity remain largely untested (Pascarella and Terenzini, 1991).

Exhibit 3-5. A general causal model for assessing the effects of differential college environments on student learning and cognitive development


Structural/
Organizational
Characteristics
of Institutions
e.g.
• Enrollment
• Faculty-Student Ratio
• Selectivity
• % Residential
Interactions
with Agents
of Socialization
e.g.
• Faculty
• Peers
Learning
and Cognitive
Development
Student
Background/
Precollege
Traits
e.g.
• Aptitude
• Achievement
• Personality
• Aspiration
• Ethnicity
Institutional
Environment
Quality of
Student
Effort

Source: Pascarella, E. (1985). College environmental influences on students' educational aspirations. *Journal of Higher Education*, 50. As published in Pascarella, E.T., and Terenzini, P.T. (1991). *How College Affects Students*. San Francisco: Jossey-Bass Publishers.

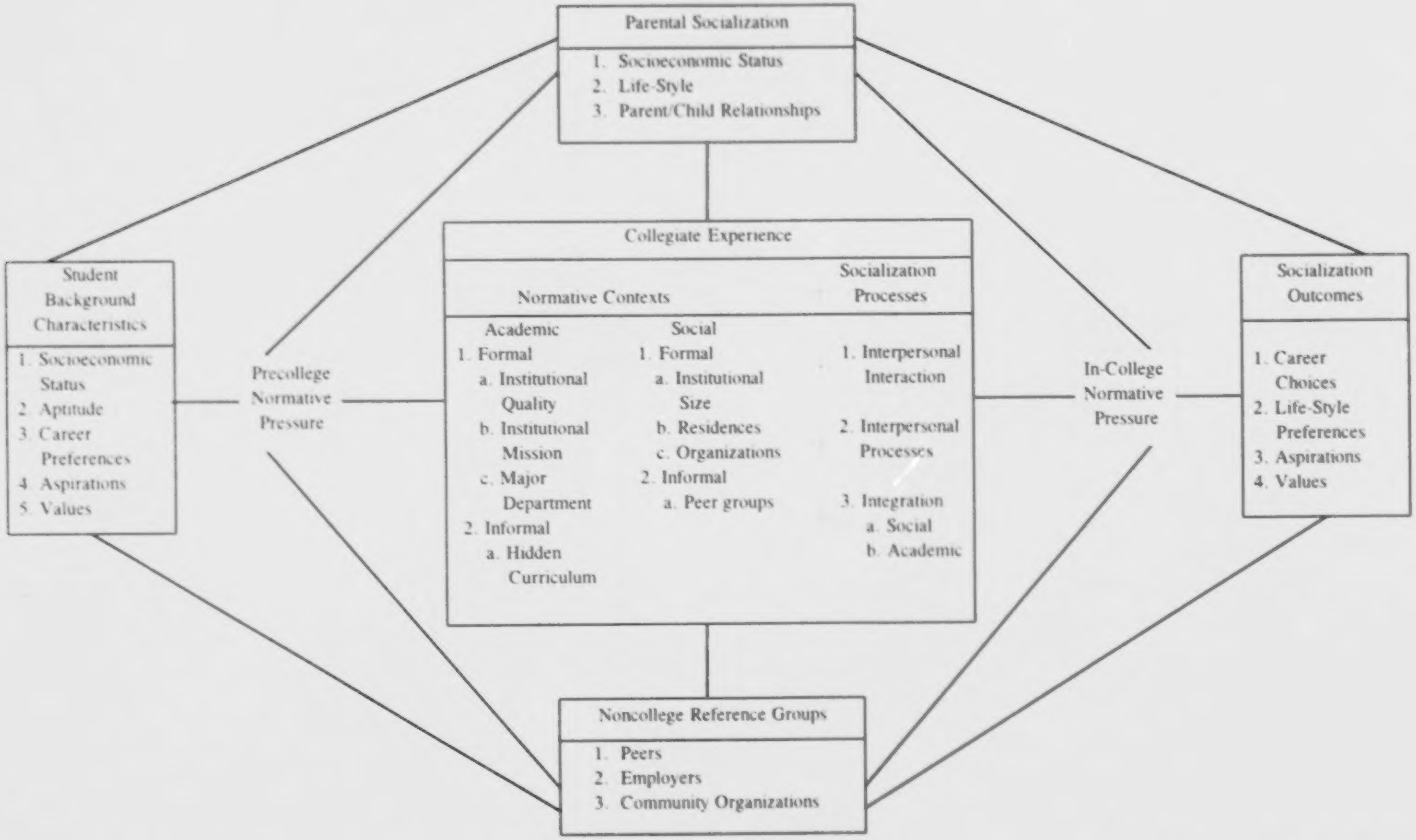
Common college impact model characteristics. In each of these college impact models, students are believed to enter postsecondary institutions with varying characteristics and traits. The institution, in turn, possesses a set of characteristics and an environment that affects the student. If a strong institutional fit is forged between the student and the college (an indication that academic and social integration have occurred), the likelihood that an individual will remain in school and eventually earn a degree is greater than when feelings of incongruence, isolation, and alienation persist.

SERVICES AND POLICIES PROMOTING RETENTION AND COMPLETION FOR DISADVANTAGED STUDENTS

Based upon the retention literature as well as their own experience, many writers have argued for a wide range of institutional policies and activities that can foster integration and promote retention. Among the most commonly cited approaches to promote academic integration, and those most commonly found on many campuses, are the following:

- Academic advising performed by a trained professional staff or faculty member, including pre-enrollment assessment, early warnings, and intrusive advising for students on probation;
- Career advising;
- Integration of support services with department instruction by working with faculty to implement some in-class academic services, using active rather than passive teaching techniques in the classroom, and identifying high-risk courses;
- Study skills training;
- Writing and language laboratories;
- Short courses in various student development/survival areas;
- Computer-assisted individualized instruction;
- One-on-one and group tutorials;
- Skill enhancement workshops; and
- Supplemental instruction (SI)--a modified discussion group that is designed to assist students in mastering the concepts of an academic course and, at the same time, to increase student competency in the study skills relevant to the course as it progresses.

Exhibit 3-6. A conceptual model of undergraduate socialization


Parental Socialization
1. Socioeconomic Status
2. Life-Style
3. Parent/Child Relationships
Student Background Characteristics
1. Socioeconomic Status
2. Aptitude
3. Career Preferences
4. Aspirations
5. Values
Precollege Normative Pressure
Collegiate Experience
Normative Contexts
Socialization Processes
Academic
1. Formal
a. Institutional Quality
b. Institutional Mission
c. Major Department
2. Informal
a. Hidden Curriculum
Social
1. Formal
a. Institutional Size
b. Residences
c. Organizations
2. Informal
a. Peer groups
1. Interpersonal Interaction
2. Interpersonal Processes
3. Integration
a. Social
b. Academic
In-College Normative Pressure
Socialization Outcomes
1. Career Choices
2. Life-Style Preferences
3. Aspirations
4. Values
Noncollege Reference Groups
1. Peers
2. Employers
3. Community Organizations

Source: Weidman, J. (1989a). Undergraduate socialization: A conceptual approach. In J. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (Vol. 5). New York: Agathon. As published in Pascarella, E.T., and Terenzini, P.T. (1991). *How College Affects Students*. San Francisco: Jossey-Bass Publishers.

Several instructional policies and activities to promote social integration have also been recommended by researchers, including the following:

- Orientation programs used to prepare minority and nonminority students for a culturally diverse campus;
- Summer bridge programs that provide opportunities for students to gain a head start on academic classes and campus integration;
- Parent programs, including campus visits (these may be especially important for the parents of first-generation college students);
- Mentor programs to provide role models and support;
- Peer counseling programs; and
- Multicultural centers and multicultural student affairs programs.

Lastly, several policies and activities have been recommended specifically for 2-year institutions. Researchers suggest that 2-year schools make articulation agreements with 4-year institutions as well as form vertical partnerships and cooperative relationships with the community, offer transfer counseling programs, and track student transfer rates.

In addition, a number of researchers have noted the importance of freshman year services in college integration. Abrams and Jernigan (1984), Doyle (1989), Fullilove and Treisman (1990), House and Wohlt (1991), Polansky, Horan, and Hanish (1993), and Walters and Marcus (1985) have conducted studies focusing exclusively on services delivered during the freshman year. For example, Abrams and Jernigan (1984) examined freshmen entering Eastern Michigan University's Promote Academic Survival and Success (PASS) program during the fall 1981 semester. The PASS program provided advising, academic support services, and peer tutoring for these provisionally admitted students. Polansky, Horan, and Hanish (1993) studied the effects of counseling interventions on the GPA and retention of academically deficient freshmen.

Importance of time. Researchers have also stressed the importance of having enough time and the motivation to spend time on studies and campus life. Astin (1985) noted "that the extent to which students are able to develop their talents in college is a direct function of the amount of time they devote to activities designed to produce these gains."

The Role of Support Services

Within the discussion of how to bring about higher retention and completion rates, the role of support services is often viewed as critical. Among the most commonly cited services are advising, counseling, mentoring, study skills courses, developmental courses, tutoring, and, supplemental instruction. These services are also, of course, the ones provided through the Student Support Services program. This section reviews what is known about the operation and effectiveness of these support services, raising issues or questions regarding the overall design and operation of support services programs that have been identified through the literature review and through the early stages of the National Study of Student Support Services. Many, but not all, of the studies cited are summarized in appendix C. Projects that have been summarized are organized by type of service, but due to the varied nature of programs, service overlaps exist between many projects. Therefore, it is recommended that all the tables be examined, even if the reader is only interested in one particular service.

The aim of this review is to suggest the range of services that have been the subject of evaluation, and it is not definitive with respect to which services are effective. The studies cited vary considerably with respect to design and methods of evaluation as well as scientific rigor. Some studies have very small numbers of student observations; others have limited (or no) comparison groups. Because students who receive services are almost always volunteers (i.e., self-selected), issues of bias make determination of causality nearly impossible. No effort has been made to exclude or include studies solely on the basis of the quality of the evaluation. Rather, the intent is to consider the extent of study of particular services.

Academic Advising and Academic Counseling

Academic advising and academic counseling are probably the most common support services offered by colleges. Each involves helping students select an appropriate educational program. This process may vary from a cursory review and approval of student course selections by a faculty member or professional advisor once a semester (or less) to an intensive review of student tests, prior performance, career plans, and current performance (based on faculty reports) accompanied by repeated student-advisor meetings over the course of a semester or year. Often, academic advisement and academic counseling are offered to students on a voluntary basis.[3] Although many studies examine the outcomes of various forms and intensities of academic advising, studies are often brief with respect to the content and/or intensity of the service. (Appendix table C-1a discusses literature related to academic advising and academic counseling.)

Intrusive advising. Several institutions have implemented policies whereby an academic advisor or academic counselor actively seeks contacts with students considered at risk prior to enrollment or with students demonstrating poor academic performance, especially during their first semester. This intensive advisement process is often called intrusive advising. Earl (1988) defined intrusive advising as deliberate, structured intervention at the first sign of academic difficulty in order to motivate the student to seek assistance, and numerous studies have addressed the issue. In his study, Earl (1988) described the intrusive advising approach used at Old Dominion University. All probationary first semester students received a letter asking them to contact an academic advisor. Once contact was established, the student was asked to commit to a course of action and continued to see the counselor for followup appointments. A three-semester program evaluation showed that students who participated in the advisement sessions showed statistically significant grade changes and higher retention rates when compared with a control group.

An intrusive advising program targeting freshmen, evaluated by Glennan and Baxley (1985), showed similar results. The authors determined that the counseling program increased enrollments, reduced attrition rates, and improved academic achievement (as measured by GPA, courses attempted, and courses completed). Hunziker (1984) conducted a comparable study and found that students who were contacted for advisement and followed the advice provided achieved higher GPAs than other students.

The study conducted by Trippi (1989) examined an advisement program where the counselors made extraordinary efforts to contact black students enrolled in a predominantly white university. These attempts included repeated phone calls, handwritten letters, and attempts to establish contact through the students' faculty advisors or roommates. This program was not labeled intrusive by either the institution or Trippi, but it resembles the previously discussed projects in terms of counselors actively pursuing students identified as at risk either prior to admission or at some point during their college education. The labeling of this program as nonintrusive points to the difficulty associated with attempts to classify service offerings.

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[3] Academic advising and academic counseling are generally voluntary, with the exception of receiving approval of course schedules during the first year (or longer).

The need for academic advising. Most schools provide some level of advising service to freshmen, either by faculty or by an advising center. Even with respect to the freshman year, however, it is unclear how often disadvantaged students with greater academic need should obtain advising. Beyond the freshman year, there is considerable difference in the extent to which schools continue to require (or provide) advising services, even for students who were considered at risk at entrance. Almost every program discussed in the literature targets freshmen. Few advisement programs studied continued past the first year, and those that did tend to lose intensity. Often, institutions will continue to offer academic assistance to students having specific problems, but students must make an effort to obtain these services.

Burrell and Trombley (1983) examined minority students' perceptions of academic support services and their preferred sources of support. Of the students surveyed, 62 percent indicated that academic advising was the most valuable support service. On one campus, however, where 73 percent of the respondents were upperclassmen, career planning and placement was cited as the most important service offering. This may be an indication that the need for academic advising remains throughout the college experience, but the focus of that need changes as students move beyond their freshman year.

Advising for students with academic difficulties. Most institutions consider intrusive advising to be a key service for students who are performing poorly academically. The specific links between advising and academic performance, however, are not well established. Intrusive advising (described earlier) showed positive results for students participating in the program. The programs examined by Earl (1988) and Glennan and Baxley (1985) focused on intrusive advising programs targeting students on academic probation. In the other programs discussed, advisors or counselors assessed students' need for services and then attempted to contact those individuals determined to need help.

An additional study by Lopez et al. (1988) examined the effects of an intrusive advising program for participants in the Educational Opportunities Program (EOP) at Central Washington University. These students were required to attend three advisement sessions per week, two with peer advisors and one with a staff advisor. Peer advising ended after the students completed one academic quarter with a GPA above 2.0; staff advisement continued for two additional quarters. The only developmental education course EOP students were required to take was an academic study skills class. About 90 percent of the students, however, also had to take remedial courses. When program participants were compared with the overall university population, positive gains were found in GPAs and retention rates. At the end of the first year, despite entering with much lower GPAs, program participants had an average GPA of 2.39, compared with 2.45 for all university students. Between the first and second year, retention rates were 62 percent for the university overall and 70 to 85 percent for the EOP students.

Advising contracts. In order to ensure that students considered at academic risk or those on probation attend advising sessions, some schools require students to agree to attend sessions or risk suspension. (In reality, however, few schools follow through on suspension even when students miss sessions repeatedly.) Hudesman et al. (1986) examined the impact of a structured counseling program on GPA and retention at New York City Technical College. A group of students developed a contract with their counselors to attend a series of three semistructured interviews during their first and third semesters. The contract also provided for academic activities as well as general counseling contacts. When this group was compared to a similar group of students receiving nondirective counseling, the treatment group had higher GPAs after the first semester. During the second semester, however, both groups received nondirective counseling. There were no significant differences between the two groups, suggesting that the counseling had little carryover effect.

Motivating students to perform better. Only a few studies have described the techniques advisors use to try to elicit better performance. The intrusive advising program Earl (1988) described depends on student motivation to succeed rather than on student volunteerism or motivation to seek help. The Urban Community Colleges Transfer Opportunities Program (UCCTOP) funded activities at five community colleges designed to promote the transfer of minority college students to 4-year institutions. In this instance, the motivation to participate and succeed was based on the students' personal desire to transfer to different institutions. Droge and Roundy (1992), however, described an advising program that was administered within the context of an actual college course. These enriched speaking and writing courses were open to all entering freshmen regardless of risk status. The course instructor functioned as an advisor to all the students but provided more intensive assistance to students struggling academically. Thus, the motivation to attend advisement sessions rested in the students' desire to attend class and earn a passing grade.

Professional versus faculty advisors. There is an increasing trend to utilize those with specialized skills as advisors. Some schools use professional advisors who spend all or much of their time on this function, while others rely on faculty advisors. Often, schools that use faculty advisors provide explicit training for this responsibility. Several studies of academic advisement considered the use of faculty members either as the only advisors or in conjunction with professional advisors. Droge and Roundy (1992) described a program at the University of Puget Sound in which faculty members taught small sections of 15 to 20 students, combining at-risk students with other students. The course instructor administered a learning styles inventory to help all the students develop an understanding of their own learning preferences and appropriate strategies for completing work. Course instructors also provided intensive advisement and referrals to the university Learning Center as dictated by their observation of students' performance and needs. Droge and Roundy noted that the involvement of faculty, including senior faculty, as advisors for freshmen through introductory courses was critical. Thus, faculty members served as the students' primary advisors within a classroom environment.

Glennan and Baxley (1985), Hudesman et al. (1986), and Patrick, Furlow, and Donovan (1988) described three different approaches to academic advising. The first study investigated a program that relied heavily on faculty advisors, while the program discussed by Hudesman et al. (1986) only used professional advisors. Both of these studies found that academic advisement or academic counseling had an impact on students' GPA. Baxley and Glennan also found a reduction in attrition rates, an increase in enrollment rates, and an increase in freshmen attempting and completing more hours. Patrick, Furlow, and Donovan (1988) described a program that relied on both faculty and professional advisors. Pennsylvania State University-DuBois established an academic advisement team consisting of two professional counselors and six faculty members. The professional counselors provided training for the faculty advisors, emphasizing developmental academic advising and career counseling techniques. Students received intensified academic counseling in connection with a freshman experience course. By the end of the first year, the retention rate for student participants was 85 percent compared with 76 percent for nonparticipants. By the end of the second year, these rates were 83 percent and 69 percent, respectively.

Peer advising. Some schools have turned to peer advising for several reasons, including efforts to establish better rapport with students and to effect cost savings. There are few studies, however, that have examined the use of such advisors with disadvantaged students. Buck and Pineda (1985) described a peer counseling program at the University of California-San Diego. The peer counselors worked with underrepresented and high-risk students, primarily assisting with study skills, teaching techniques, and self-concept development strategies. In addition, these counselors maintained regular office hours, assisted with course selection, helped students obtain financial aid, referred students to academic support services, and visited students in the dorms.

A similar program at Central Washington University (Lopez et al., 1988) also used peer advisors to work with educationally disadvantaged students. Peer advisors were required to meet with students enrolled in the Educational Opportunities Program twice a week until the students earned a GPA above 2.0 for one academic quarter.

Background and advising. Specific concerns have been expressed that nontraditional students (women and minorities) might have difficulty relating to white male faculty who represent the bulk of advisors in many schools. The literature included in appendix table C-1a does not address this issue specifically in the context of advisement. Several studies (including Atkinson, Ponterotto, and Sanchez, 1984; Boesch and Cimbolic, 1994), however, have examined the necessity of providing counselors of the same race/ethnicity and sex as the students seeking help. The results of these studies have offered contradictory evidence (see the section on nonacademic counseling for further detail).

Group advising. Institutions are increasingly offering group advising sessions, especially during student orientation periods. It is thought that group advising gives students a chance to share their views, and that it is simpler logistically (and less costly) to schedule group rather than individual advisement sessions. Francis, McDaniel, and Doyle (1987) examined the impact that group counseling had on interpersonal skills, study habits and attitudes, and academic achievement on a group of predominantly academically disadvantaged minority students. One group of students, who received academic counseling as well as communication skills training, exhibited positive gains in communication skills and GPA. Miles and McDavis (1982) compared the impact of group counseling orientation sessions with that of individual counseling orientation sessions. Their results showed that individual orientation sessions had a greater impact on students' perceptions of future counseling center use.

Use of tests or other materials. Advisors use a number of approaches to assess students' abilities and interests. Some advisors administer tests or inventories, while others rely on data available at the time of admission including high school GPA, SAT scores, and ACT scores. As previously mentioned, however, researchers have found that past academic success is not a reliable indicator of minority students' performance in college. In the small advising sections described by Droge and Roundy (1992), faculty members administered a learning styles inventory to help students develop an understanding of their own learning preferences and to develop personal strategies for completing academic work. Giles-Gee (1989) also examined an advisement program where faculty advisors administered a series of questionnaires to identify students' academic strengths and weaknesses.

Nonacademic Counseling (Personal, Financial Aid, Career, etc.)

Beyond academic advising and academic counseling, colleges provide a variety of additional counseling services. Among the most common are personal counseling (group or individual therapy sessions to work on personal problems), financial aid counseling (group or individual assistance to provide information on sources of aid and to assist students and their families in completing financial aid forms), and career counseling (group or individual sessions as well as access to written and computer resources to assist students in selecting occupational fields). These forms of counseling are almost always provided by nonfaculty professionals in the relevant fields and may vary in intensity from single sessions to multiple visits over a semester or year. In some cases, personal counseling may lead to referrals for psychological care beyond the campus.

Use of nonacademic counseling for at-risk students. Nonacademic counseling is often used as a means to stimulate academic and/or social integration. Career counseling, for example, is sometimes viewed as a means to motivate disadvantaged students to continue their studies. Personal counseling is seen as a way of helping students adjust to and form ties to other students and the institution. Miles and McDavis (1982) examined the impact of four different orientation methods on black students' perceptions of future use of the counseling center. They found that providing an individual orientation session with a black counselor had the largest impact on perceived future use of services for personal problems. The results also showed that including a visit to the counseling center as part of the orientation process increased students' knowledge of available services.

Pulliams (1988) made several recommendations that counselors should apply to increase minority student retention, including

- Establishing a minority mentoring program sponsored by faculty and staff;
- Targeting minority students for orientation and special courses;
- Using faculty advisors as a link between the university and minority students;
- Using minority student peers to assist with orientation; and
- Promoting staff development to help faculty identify the learning needs of students with nontraditional backgrounds.

Motivating students through counseling. Counselors use a multitude of techniques to ensure that students attend and participate in each form of counseling and to motivate school attendance. In addition to the motivation strategies presented in the academic counseling section, Cohen, Lombardi, and Brawer (1988) discussed the findings from the second year of the Urban Community Colleges Transfer Opportunities Program (UCCTOP). This program was designed to promote the transfer of minority community college students to 4-year institutions. Thus, the students' motivation to attend counseling sessions was imbedded in their desire to transfer to a 4-year institution. This was similar to Earl's (1988) study of intrusive advising where the program depended on students' motivation to succeed.

Use of peer counselors. Although peers (other undergraduates) rarely provide personal or career counseling, they may provide financial aid assistance or other services. Davis (1988) presented a detailed description of the theory and technique used in higher education peer counseling. A major goal of most peer counseling programs is to promote the retention of high-risk students. This is accomplished through developing counseling relationships that incorporate empathy, warmth, and respect. Pulliams (1988) saw the use of peer counselors as a cost-effective strategy. This observation was particularly pertinent during an economic time in which universities needed to recognize and implement cost-effective counseling programs.

Race/ethnicity, sex, and counseling. Several studies have been conducted to determine the importance and necessity of providing counselors of the same sex and/or same race/ethnicity as the students. The literature did not show conclusive results on either issue. Atkinson, Ponterotto, and Sanchez (1984) examined the counseling preferences of Vietnamese and Anglo-American students and found that neither group of students showed clear-cut preferences for counselors of the same sex or ethnicity. Boesch and Cimbolic (1994) found similar results when studying the use of counseling by black students. Their findings showed that the percentage of black students counseled at predominantly nonblack schools did not vary according to whether a black counselor was available. In Sanchez and King's (1986) study of the use of counseling services by Mexican American and white students, however, it was determined that the greater the Mexican American students' commitment to the Mexican American culture, the more important it became for the counselor to share this ethnic background and to speak Spanish.

Mentoring

Mentoring is a process of shepherding or guiding performed by someone in a more advanced position than the student. In colleges, new students are matched with persons (usually, but not always, of the same race/ethnicity) who are experienced in the institution, the students' academic fields, the careers the students are contemplating, or in some other manner. Mentors may be professional staff, faculty, alumni, people employed in a specific field, or more advanced students. Mentoring may be designed to encourage students to pursue particular fields or to explore particular careers, and a specific mentor may be chosen to advance additional goals. Steele (1991) mentioned that previous research has shown that mentoring to be an effective tool in the recruitment and retention of minority students. Appendix table C-1c provides additional information about projects offering mentoring services.

For disadvantaged students, mentoring at college is sometimes seen as a substitute for the knowledge and experience that comes with having had parents or siblings who attended college (and/or hold professional jobs). Mentors serve as role models and valuable sources of information for their mentees. Previous research suggests that the intensity of mentoring contacts may vary over a semester or year. For example, Oestereicher (1985, 1987) examined the use of peer mentors at Brooklyn College. The student mentors received specialized training and were paid for their work with students enrolled in the Search for Education, Elevation, and Knowledge (SEEK) program. Student mentors were required to attend the mentored class at least once a week, to be available to the students for 5 hours per week, to assist with homework assignments, and to serve as a role model.

Who are the mentors. Mentors may be faculty members, members of the business community, or fellow students. These individuals are more experienced than the student either in specific ways (such as working in a field of interest to the mentee) or in more general ways (such as helping a student through the transition from high school to college or from college to the workforce). In the Oestereicher studies (1985, 1987), the peer tutors were six black females who had previously completed the course they were assigned to mentor with an "A." Thus, these women spoke the same "language" as the students while also serving as models of success.

Uses of mentoring. Mentoring may serve as a substitute for other services. Oestereicher (1985, 1987) used the terms peer mentor and peer tutor interchangeably, and Steele (1991) listed four levels of mentoring that include elements of tutoring and counseling. For example, at level 2, the mentor provides counseling and personal support to the mentee. At level 4, the mentor helps the mentee move ahead in his or her career. Thus, the distinction between mentoring and other services, such as tutoring and counseling, may be difficult to make.

Study Skills Courses

Colleges offer a number of courses designed to acquaint students with the institution, with its offerings and services (library, counseling, tutoring, etc.), and with the general study skills (notetaking, test taking, time management, etc.) they will need to succeed. These courses have varying titles (study skills, college survival, college orientation) and often bear college credit. The goals of study skills courses can range from improving retention rates and GPA (Polansky, Horan, and Hanish, 1993; Thompson, 1976) to reducing testing performance gaps between minority and nonminority students (Frierson, 1984). Some schools require that all new students enroll in these courses. Appendix table C-1d describes study skills programs present at several institutions.

Defining a study skills course. Study skills programs may be offered separately from general course instruction or may be included within the traditional course offerings. Polansky, Horan, and Hanish (1993) discussed the use of a study skills training course. The course focused on time management, goal setting, learning styles, and relaxation. Levin and Levin (1991), on the other hand, examined the teaching of study skills, learning strategies, and test taking through an integrated approach (i.e., as part of a regular academic course rather than as a separate course). They found the best results occurred when subject-specific skills were taught in conjunction with course content. This provided the students with the opportunity to apply their new skills immediately and to receive feedback and reinforcement.

Sponsorship of study skills courses. Study skills classes may be offered in a variety of settings. For example, the study skills classes discussed by Polansky, Horan, and Hanish (1993) were offered to a broad segment of the student population. Student participants enrolled in a specific study skills training course that met twice a week for 2 weeks. Scott and Robbins (1985) examined students enrolled in four sections of a learning skills class. Each of these courses was offered independently of regular course offering. Droge and Roundy (1992) and Giles-Gee (1989), however, provided examples where study skills instruction was incorporated into traditional college course offerings. Study skills were offered in small advising sections of "enriched" speaking and writing classes in the Droge and Roundy study. In the Giles-Gee evaluation, students were encouraged to enroll in a specific psychology course that focused on study skills.

Developmental Courses

Developmental (or remedial) courses are provided to students who are considered insufficiently prepared to tackle regular college work. These courses may or may not fulfill graduation requirements. The most common subjects offered are reading, writing, and mathematics. In some schools, students with poor previous academic performance must pass developmental courses before enrolling in regular courses. In other schools, developmental coursework may be designed to prepare a student to pass a test necessary for enrollment in regular classes (or for graduation). Appendix table C-1e discusses related studies.

Links between developmental coursework and other instruction. A U.S. Department of Education Fast Response Survey System survey (U.S. Department of Education, FRSS 38, 1991) revealed that during the 1989-90 academic year, 74 percent of postsecondary institutions (90 percent of 2-year colleges and 64 percent of 4-year schools) offered one or more remedial courses in either reading, writing, or math. Approximately 30 percent of all entering freshmen that year enrolled in at least one of these courses. Self-reported data collected through the National Postsecondary Student Aid Study (NPSAS) showed that 13 percent of all undergraduates were enrolled in remedial education during the 1992-93 academic year. Of these, 56 percent were freshmen, 24 percent were sophomores, 9 percent were juniors, and 9 percent were seniors (Knopp, 1995).

Developmental classes may be offered independently of other academic services, as in the case of 24 West Virginia universities (Call, 1982). Many of the basic skills programs (BSPs) offered by these institutions are mandatory, including 74 percent of the math

BSPs, 73 percent of the writing BSP, and 36 percent of the reading BSPs. The BSP program coordinators recommended that after a basic skills assessment is made, students exhibiting deficiencies in a particular area should be required to enroll in a BSP and not allowed to enroll in regular classes until completing the basic skills prerequisites.

Developmental education may also be incorporated into regular college courses or may be offered as a component of a support services package. Young (1986) described a psychological education course that focused on developing research, writing, and learning skills and on assisting in the college adjustment process. This course was part of a student's normal semester course load and was made available to first-year minority students enrolled in the Educational Opportunities Program (EOP). In other institutions, developmental courses were just a portion of the EOP academic service offerings, such as the program at Central Washington University (Lopez et al., 1988). Eastern Michigan University's Promote Academic Survival and Success (PASS) required student participants to enroll in specific credit-bearing courses during their first semester. These classes (English, math, or science; history or political science; and a general university-studies course) resembled the mainstream curriculum in all ways except that they boasted a lower teacher-to-student ratio.

Goals and measurement in developmental education. As noted, in some schools developmental courses must be passed, while in others they are intended as test preparation (i.e., to pass an entrance examination for enrollment in regular coursework) or for teacher certification of student preparedness. Generally, developmental courses are designed to provide the basic skills students will need to succeed in the college classroom and/or to ease the transition from the high school to the college learning environment.

Courses and credit. Institutional policies regarding awarding credit for developmental courses differ among schools. In some institutions, these courses carry credit toward graduation, while in others they do not (although they may meet hour qualifications for Pell Grants). Newton (1990) discussed 10-week Support Seminars taught by graduate students. These seminars provided students with one hour of credit. Program participants persisted at a 52 percent higher rate and graduated at a 33 percent higher rate than a similar group of nonparticipants. Young (1986) also examined a credit-bearing freshman guided studies seminar that met three times a week for an entire semester, in which students were required to take two exams and write a four- to five-page research paper.

Courses and continuation. It has been argued that hefty developmental course requirements frustrate students and lead to them dropping out. The literature, however, is insufficient to reach conclusions on this topic. As previously mentioned, participants in the 10-week Support Seminar program (Newton, 1990) persisted and graduated at higher rates than nonparticipants. Young (1986) found that program participants had mean and median GPAs of 2.58 and 2.63, respectively, compared with a 1.99 mean GPA and a 2.20 median GPA for the overall group of first-year minority students—differences that were statistically significant. Hobbs' (1989) study of student participation in the Academic and Developmental Services (ADS) program at a community college revealed that over 60 percent of first-time freshmen entering the college in the fall of 1988 were placed in remedial and developmental courses. Participants in these programs had significantly higher retention rates from the fall to winter term than nonparticipants.

Course Tutoring

At many institutions, course tutoring is the most frequently utilized service in terms of total student contact hours. Tutoring may be offered by individual departments, student organizations, specialized programs and centers, and/or the institution as a whole. Most tutoring focuses on remedial, lower division, or general courses. Tutoring may be offered free of charge (there is usually a limit on amounts of such service) or for a fee. Appendix table C-1f provides additional details on tutoring programs, including information about peer tutor and tutor training programs.

The parameters of tutoring. While the nature of tutoring is well defined, the format differs across institutions. At some institutions, tutoring (especially in groups) may be almost identical to what is called a laboratory, a group study session, or supplemental instruction at another institution. Hartman (1990) defined the purpose of tutoring as facilitating academic gain and developing self-directed or independent learners.

Providers of tutoring. Tutoring is commonly delivered by more advanced undergraduate students (more advanced overall or in the subject matter of the tutoring), but it is also provided by professionals (i.e., persons with bachelor's degrees or greater). Several studies have examined the use of peer tutors in providing tutoring services. House and Wohlt (1991) discussed a peer tutoring program at a large Midwestern university. Each tutor received 11 hours of training that stressed study skills, test-taking skills, reducing math anxiety, reducing test-taking anxiety, and communication skills. The authors emphasized the cost-effectiveness of peer tutoring programs. Condravy (1990) described a peer tutoring program at Slippery Rock University in which approximately 25 to 30 people were trained as tutors each semester. Potential tutors participated in a 5-hour orientation session and in workshops focusing on communication skills, study skills, and tutoring programs. In their evaluation of the training programs, peer tutors stated that the overall training as well as each training component was helpful. Of the students receiving tutoring/mentoring in the Search for Education, Elevation, and Knowledge (SEEK) program at Brooklyn College (Oestereicher, 1985, 1987), 95 percent said they would recommend the program to others and 93 percent expressed an interest in continuing to see their peer tutor/mentor following the completion of the mentored course.

Context of tutoring. Tutoring is often provided at drop-in centers, but the service may also be available through scheduled appointments. Based on their case study analyses, Levin and Levin (1991) concluded that effective tutoring programs utilize small-group tutorials rather than one-on-one tutoring as a means of encouraging social integration. For example, they found that the Summer Bridge Program at the University of California-San Diego used a peer support network to help students with the transition to college in the fall. Participating students studied and worked together on academic assignments.

Several other researchers discuss the use of one-on-one and/or small group tutoring in a variety of environments.. Okawa (1988) described a university writing center as being the focal point for one-on-one peer tutoring of minority students. Vincent (1983) evaluated the impact of tutoring services offered through the Learning Assistance Center (LAC) at a predominantly Hispanic institution. At the LAC, tutoring services were offered on both an individual and small group basis.

Amount of tutoring needed. The amount and scope of tutoring vary by institution. Some colleges offer unlimited tutoring in almost every course (provided a knowledgeable tutor is available). Others limit tutoring services to a few courses and/or a few hours. Most evaluations of tutoring programs have found that students benefit from frequent tutoring contacts, but these studies have not determined if an optimal level of tutoring exists. At the LAC (Vincent, 1983), tutoring was only available to freshmen and sophomores in English, math, biology, chemistry, and social studies courses. The peer tutoring program at Slippery Rock University (Condravy, 1990) served both regularly admitted and academically underprepared students. Abrams and Jernigan (1984) discussed the use of peer tutoring for PASS students. These students were eligible for free peer tutoring. The number of tutor contacts approached significance when the group was divided into those passing fall semester and those failing fall semester. The students with higher fall GPAs saw the tutors an average of 2.26 times during fall semester compared with 1.81 times for students who failed fall semester.

Assessment by tutors. Maxwell (1990) concluded that it is difficult to show the successful impact of individual tutoring--it may have some positive effect on persistence but little effect on GPA. Students who did, however, earn higher grades after tutoring tended to have been better prepared academically, have had higher ability, and/or have had more experiences in college. Maxwell suggested that other instructional methods involving peers, such as supplemental instruction, may be more effective than tutoring.

Supplemental Instruction (Also Mastery Classes, Organized Study Groups)

Supplemental instruction (also called mastery classes and study groups) refers to credit- or non-credit-bearing organized study sessions attached to specific courses. Such sessions are characterized by regularly scheduled meetings or lab times (usually on a weekly basis). They are usually headed by instructors or other professionals, although advanced undergraduates may also lead sessions. Supplemental instruction (SI) program content is designed to augment the course to which it is attached. SI is increasingly viewed as particularly beneficial for disadvantaged or at-risk students. It can potentially function as a catalyst for both academic and social integration. Additional information about SI programs can be found on appendix table C-1g.

Defining supplemental instruction. SI may be more or less formal, depending on the institution and program. Several researchers discussed the use of SI programs, including Congos and Schoeps (1993), Fullilove and Treisman (1990), and Hawthorne and Hawthorne (1987). Congos and Schoeps (1993) examined the SI program at the University of North Carolina-Chapel Hill, which targeted high-risk classes rather than high-risk students. It was proactive, providing students with help before they encounter serious academic difficulties. Fullilove and Treisman (1990) studied the effectiveness of the Mathematics Workshop program (MWP) at the University of California-Berkeley. The MWP was designed to improve the performance of students in first-year calculus. Over 80 percent of the participants were black or Hispanic. MWP organized participants into study groups of five to seven students to work on "unusually difficult" calculus problems twice a week for approximately 2 hours each session. The sessions were supervised by a graduate student leader, and students were encouraged to work together and critique each other's work. Fullilove and Treisman found that a larger percentage of MWP participants than nonparticipants earned grades of B- or better. Further, participants who entered in the 1978-79 academic year had higher persistence rates than comparable nonparticipants. By the spring of 1985, 65 percent of participants were either still enrolled or had graduated compared to 41 percent of nonparticipants. Lastly, Hawthorne and Hawthorne (1987) described the Supplemental Course Instruction (SCI) program offered at the University of Missouri-Kansas City. The program served both at-risk students and high achievers, thus avoiding the stigmatism associated with remedial education.

Instructional methods. Congos and Schoeps (1993) mentioned three main modes of SI: teaching students how to effectively take notes, practicing the formulation of possible test questions and answers, and reviewing student test answers to clarify mistakes and improve student understanding of the material. During each of the MWP sessions discussed by Fullilove and Treisman (1990), participants worked on problems that were more than a coursework review. The sessions included problems that were often found on exams but rarely given on homework assignments. These problems were used to help students learn "computational tricks" and to "deepen the students' understanding of and facility with mathematical language." In the SCI program studied by Hawthorne and Hawthorne (1987), students participated in two weekly, hour-long study sessions. These sessions were used to review course material, to discuss possible test material, to create mock examinations, and so forth.

Multiple Service Projects for At-Risk Students (Including Summer Bridge Projects)

Some service delivery is offered through projects that combine several services for a subset of disadvantaged, minority, or otherwise at-risk students. These projects may be sponsored by institutions, departments, the federal government, state governments, and/or private organizations. The most common service mix includes academic advising and course tutoring, but may also include basic skills tutoring, study groups, study skills courses, developmental instruction, mentoring, or other services. Participation may be accompanied by financial assistance. These support service projects function as a means for aiding students to cement their ties to the institution while simultaneously helping the program to find a niche within the institutional environment.

Appendix table C-1h includes descriptions of several projects offering multiple services to disadvantage students.

Targeting participants. A critical concern for these programs is how to identify students who are at risk but are also likely to benefit from the program. This is primarily an issue at institutions in which relatively large proportions of the student body have limited or poor prior academic preparation. Often, students are placed in support services based on their high school GPA, high school class rank, standardized test scores, and/or performance on admission assessment tests. Abrams and Jernigan (1984) studied a group of freshmen who entered Eastern Michigan University's Promote Academic Survival and Success (PASS) program. These students had either high test scores and low high school GPAs or vice versa. The university's academic performance prediction table projected that their mean college GPA would be 1.83. Burris (1990) also examined a group of students considered at risk. Prior to entering the College of Nursing at Chicago State University, all students were given several pre-admission tests to assess their "risk status." Students who were identified as "at risk" were immediately assigned to the Academic Enrichment Program.

The use of these traditional indicators has not proven to be accurate predictors of students' academic success in all cases. In the Abrams and Jernigan (1984) study, the authors concluded that high-risk students' willingness to seek assistance from either reading teachers or tutors is the most accurate predictor of their first semester GPAs. They added that high-risk students should only be admitted to postsecondary institutions on the condition that they participate in support services due to the potential benefits of participation and the likelihood that they will not voluntarily seek these services. Nelson (1994) found similar results in an examination of at-risk students' participation in campus support services and programs. Based on the study results, Nelson concluded that receptivity to academic assistance is a good predictor of academic achievement at the end of the first year.

Optimal service mix. Institutions have adopted diversified mixes of services and referral strategies. There is considerable interest in which mix leads to the best outcomes (for which students). Recent studies have suggested that linking services to academic performance may be the most important outcome in measuring program effectiveness. Each support services program tends to develop its own blend of service offerings. Some rely more heavily on one particular service than another, but the following examples provide some general information about the scope of support services. The Academic Enrichment Program described by Burris (1990) included remediation sessions, math enrichment activities, and student workshops focusing on study skills, test-taking skills, and pertinent clinical nursing topics. The support services examined by Nelson (1994) included a 6-week summer program for high achievers, a 9-week summer program for at-risk students, a personal counseling interview, a mentoring program using peer advisors, tutorial sessions (individualized or group), career informational sessions with professional career counselors, and social enrichment activities. In the Collegiate Skills Program (CSP) reviewed by Doyle (1989), freshman year services for underprepared students included summer orientation, assessment, advising, workshops, developmental courses in reading and writing, career exploration, and study skills services.

During the 1980s, the University of Minnesota offered SSS-eligible students a variety of services through its Special Services program. The program had four components: the Integrated Course of Study (ICS)--a group of courses that integrate basic skills development, academic subject matter, and seminars focused on career, academic, and personal growth; counseling services; tutoring services; and a summer institute for entering low-income freshmen. Read (1981, 1982) conducted a 2-year study of the Special Services program, comparing participant performance on outcome measures to that of a control group. Over the 2 years, participants earned comparable or higher freshman GPAs, had higher first-year retention rates, and completed a larger proportion of their classes than the control group. While first-year retention rates were higher for participants than nonparticipants, participant performance during the sophomore year was no better than that of the control group in terms of GPA, retention through the second academic year, and proportion of courses completed.

The Success Program (SP) (McCaig, 1993) combined academic and nonacademic services to improve the retention rates of conditionally admitted first-year students. The program included a special student orientation; a 3-day, off-campus retreat during which participants form peer groups; three courses to develop critical reading and writing skills, to improve study skills, and to explore career options; and a network of peer mentors to offer ongoing support and guidance. An examination of three SP cohorts revealed that students in each earned higher college GPAs than their high school GPAs, and that retention rates for participants were better than for those of academically underprepared students prior to the existence of SP.

Generally, the relationships between various service providers have not been discussed in the literature, nor have the effects of individual services been isolated. Trippi and Cheatham (1989), however, found that in developmental programs more contacts occurred between counselors and black students than between counselors and students in other racial/ethnic groups. This finding suggested the need for a strong working relationship between the staff in the special counseling programs and the staff in the developmental programs.

Timing of service delivery. Some projects begin during a residential (or nonresidential) summer program prior to the freshman year, and evidence supports the success of this relatively expensive strategy. Many projects concentrate services on the freshman year, but projects differ considerably with respect to the intensity of service after that year. Few support services programs exist at the graduate or professional level, although Frierson (1984) discussed a study skills program that specifically targeted minority medical students.

Robert and Thomson (1994), Amerman (1991), and Nelson (1994) examined programs offering summer bridge or summer bridge-like programs. The Summer Bridge discussed by Robert and Thomson (1994) was a residential transition program offered by the University of California-Berkeley that included orientation, counseling, peer advising, and developmental courses. Summer Bridge served between 150 and 200 entering freshmen who were typically low-income, first-generation college students, underrepresented minorities, student athletes, students with disabilities, and specially admitted students. Through this program, participants developed skills to succeed in Berkeley's academic environment; earned course credits; formed peer groups based on academic activities; learned to ask for and give help, therefore reducing the stigma that surrounds support services; and became accustomed to using academic support services. Summer Bridge participants had 2-year retention rates as high or higher than nonparticipants. Prince George's Community College (Office of Institutional Research and Analysis, 1992) also provided several precollege programs including special testing and advisement to high school students, the Bridge to Success program for disadvantaged and disabled vocational high school students, and the SPAN program for students receiving special education services in high school.

Professional versus faculty service delivery. Many multiple service projects rely on a separate professional staff, some or all of whom are not faculty. There is evidence that projects with faculty participation (or strong links to faculty members) may be more successful in enabling students to establish institutional ties and to complete college, but the issue is by no means resolved. There is also the question of what training is appropriate for professional and/or faculty staff.

Many support service projects included some modicum of faculty involvement. The extent of faculty commitment varied from project to project, but the findings suggested that faculty involvement impacts students' academic performance and persistence rates. In Eastern Michigan University's Promote Academic Survival and Success (PASS) program (Abrams and Jernigan, 1984), students were required to enroll in specific first semester classes where the teacher-to-student ratios were lower than in corresponding classes in the same area. At Chicago State University's College of Nursing, faculty members received training in reading comprehension, diagnosing students' academic deficiencies, and utilizing remediation strategies according to the students' identified learning needs. Thus, at-risk students received assistance tailored to the nursing curriculum from knowledgeable instructors (Burris, 1990). Levin and Levin (1991) discussed programs where institutions have developed proactive intervention programs beginning in the students' first term or earlier to help ensure that minority students who might not otherwise receive assistance made contact with support services. In other programs, professors identified students who are having trouble at midterms for referral to study skills workshops.

A model developed by Fox (1985) emphasized the importance of informal student/faculty intervention, although the only measure that yielded a significant correlation with social integration was the extent and quality of peer relationships. None of the interactions with instructors or counselors were significantly related to persistence. Walters and Marcus (1985) found, however, that differences in student retention rates appeared to be related only to the faculty role in the Equal Opportunity Fund (EOF) program. Colleges where regular faculty members were major participants in the program had better student retention rates than programs that used adjunct faculty and those that used regular faculty but did not involve them in the program substantially.

Other Services

As part of the literature review, we looked for studies of other services commonly provided by SSS. These included one-time workshops or seminars (e.g., career, test taking, study skills, dressing for success, etc.) as well as cultural events (attendance at performances, visits to off-campus sights, visits to other institutions, etc.). We did not find studies examining the outcomes of these activities. Some of this information, such as the topics covered in workshops or seminars, however, is addressed in the sections on counseling, tutoring, and study skills courses.

A META-ANALYSIS OF SUPPORT SERVICE PROGRAMS

In a meta-analysis of 60 evaluation studies of programs for disadvantaged students, Kulik, Kulik, and Shwalb (1983) concluded that special programs had positive effects. This generalization held true for different types of programs for the high-risk college student: reading and study skills courses, guidance sessions and comprehensive support services. High-risk students in programs stayed in college somewhat longer and had somewhat higher grade point averages than did controls. Although the effects were statistically reliable, they were small, and the size of the effect varied by type of program, age of program, and when the student began. Newer programs and those that began in high school had the strongest effects. While academic skills programs did have positive effects, those programs classified as remedial/developmental, and most associated with community colleges, had effects that were indistinguishable from those of the regular programs.

STATEWIDE PROGRAMS

A number of state systems have conducted evaluations of their own support services programs. An examination conducted by the Southern Regional Education Board shows the extent to which institutions offered and students actually enrolled in developmental/remedial courses. In addition, case studies from New Jersey and California demonstrated that program effects, where they were found, were small and sometimes inconsistent. Summaries of these and other statewide program evaluations can be found in appendix table C-2.

Southern Regional Board of Education (SREB). SREB examined the existence and use of remedial/developmental reading, writing, and math courses in 862 2-year and 4-year public and private institutions. The results showed that over 90 percent of the public colleges and universities surveyed offered these types of programs. Among private institutions responding to the survey, over 70 percent offered remedial/developmental programs. Overall, 32 percent of first-time freshmen were enrolled in at least one remedial/developmental class. Remedial/developmental course enrollment rates for black and Hispanic students were 1.5 to 2 times greater than remedial/developmental course enrollment rates for whites.

New Jersey. The State of New Jersey evaluated its Equal Opportunity Fund programs by studying four indicators and retention data from eight institutions. Each program was classified based on retention rates, average ability of students, hours of tutoring per student, hours of counseling per student, and participation in remediation (Walters and Marcus, 1985). The study concluded that

> "Examination of student and program data in terms of four quantifiable factors generally assumed to be related to retention--level of prior preparation, appropriate remediation, adequate counseling, and adequate tutoring--showed no consistent relationship between the presence of these variables at an institution and retention rates."

California State University system. Guthrie (1992) conducted a 5-year study of the California State University (CSU) system's Summer Bridge and Intensive Learning Experience (ILE) programs. Summer Bridge was a 3- to 6-week residential program similar to University of California-Berkeley's Summer Bridge program. ILE offered first-year English and math remediation for students performing at the lowest quartile of placement tests. Participant performance was examined across the system's 20 campuses. Overall, Summer Bridge participants had 5-year retention and graduation rates that were comparable to those of CSU students systemwide, roughly 55 percent. One-third of campuses, however, reported retention and graduation rates for minority Summer Bridge participants that exceeded those of underrepresented minorities systemwide. Retention and graduation rates for students in ILE were somewhat lower than those of CSU students systemwide, that is, 51 percent compared with 55 percent. For students admitted under special circumstances, however, ILE appeared to be more effective, with participants and specially admitted CSU students systemwide reporting similar retention and graduation rates. While ILE offered up to two full semesters of remediation in math, fewer ILE participants went on to take baccalaureate math and receive a passing grade than students who passed or performed marginally on the math placement test.

California Community College system. The California Community College system also offered support services to assist students in meeting their educational goals through its Matriculation program. The program offered admissions, orientation, assessment, counseling/advising, and followup services to students. A 1991 study of participants from 12 community colleges suggested that receipt of full service (four or five components) led to better outcomes than receipt of partial service (two or three components) or receipt of admissions services only (Scott-Skillman and Halliday, 1991). Specifically, persistence rates improved with receipt of more services, with 87 percent of full-service students persisting from the fall to the spring compared to 80 percent of partial-service students and 70 percent of admissions-only students. This relationship held when controlling for entering skills and socioeconomic status. Receipt of full service had a particular effect on students entering with skills less than the college level. These students had higher ratios of course completion and higher GPAs than similar students receiving partial or admissions-only services.

PREVIOUS AND ONGOING EVALUATIONS OF STUDENT SUPPORT SERVICES

Since its inception in 1970, periodic studies and evaluations of the SSS program[4] have been conducted. These studies have varied in purpose, size, and methodology, with most being small studies of only a few programs. They are summarized below and are also summarized in appendix table C-5.

Studies conducted during the 1970s and 1980s. In 1972, only 2 years after the start of the SSS program, an Educational Testing Service (ETS) study found that Special Services projects had little impact on participating students (Davis, Burkheimer, and Borders-Patterson, 1975). Specifically, there was no evidence that participation in support services activities systematically improved student performance and satisfaction with college over that which might have been expected from past performance (i.e., high school GPA). ETS also found that race/ethnicity was more important than poverty or physical handicap in predicting outcomes. Regarding the impact on the institution, the study did find, however, that campus respondents in institutions with SSS programs had more positive attitudes toward disadvantaged students.

Two additional studies were completed in 1982. The first, by the General Accounting Office (GAO), reviewed institutional records of student participation in 11 projects and found that about 50 percent of the participants were not at the same institutions 3 years later. Students who did persist tended to fall behind the normal rate of academic progress (GAO assumed that normal was one grade a year, which is actually higher than the average rate of progress). A 1982 evaluability assessment of the SSS program, based on site visits to nine projects, provided a general picture of project practices (Jung, Shubert, and Putnam, 1982). The ensuing report focused heavily on problems in the relationship between local project directors and the federal office administering the program. It concluded that federal officials and local officials had no major disagreements on project goals, and that project records and other data were adequate to conduct a wide-ranging assessment of projects.

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[4] All earlier research cited concerns the program called Special Services for Disadvantaged Students, the name of the SSS program before technical regulations issued in July 1987.

In 1985, however, the Office of the Inspector General of the U.S. Department of Education conducted an audit of five institutions and concluded that four of the five had problems in documenting student eligibility and project participation (Office of the Inspector General, 1985). In addition, the GAO conducted a program implementation study between 1977 and 1980 in 11 sites and also found poor recordkeeping, as well as inadequate performance reports. The GAO study also reported little congruence between local and federal project objectives (U.S. General Accounting Office, 1982).

The 1983 Systems Development Corporation Study. The largest evaluation prior to the National Study of Student Support Services was the national evaluation of Special Services programs conducted in 1981-83 by Systems Development Corporation (SDC). This study involved an assessment of students over 1-year and 2-year periods. The study included 58 programs and a sample of 6,000 students. The methodological design involved comparing participating students with eligible nonparticipating students. Key findings on short-term impact (after 1 year) included the following:

- Students who received a full range of services were more likely to complete their freshman year than students receiving few or no services.
- Students receiving more services were likely to attempt and complete more credits.
- Students receiving a full range of services were more likely to receive lower grade point averages than students receiving fewer services.
- Minority and low-income students received lower grades and took fewer course credits than other students but had comparable retention rates.
- Students with greater financial aid were more likely to stay in school during their freshman year, attempt and complete more credits, and obtain higher grades.

The study also found that participants were more likely to be low-income and minority status than other students attending the same institutions, and more likely to be low-income than eligible students not receiving SSS services. Exhibit 3-7 summarizes the major findings of the baseline report based on 1 year of data collection.

The findings after the second year were somewhat different than those from the first year. In the second year, moderate levels of academically oriented special services provided in a student's freshman year were associated with more extended enrollment and with greater numbers of course units attempted and completed; more intensive academically oriented special services in a student's freshman year were not associated with improved outcomes; and non- academic special services received either during the freshman year or later were associated with more extended enrollment, greater numbers of course units attempted and completed, and higher grades achieved.

Academic special services received after the freshman year were associated with poorer long-term outcomes. The study found that 60 percent of the SSS-eligible students were still enrolled after 2 years, and over half were full-time students. In general, students who received moderate levels of service tended to show superior performance on the three outcome measures (time enrolled, course units attempted, and courses completed) compared with students who received no services in their freshman year. Only certain pairing of services, however, showed these effects, and there was no clear evidence that one particular kind of service was superior to another.

As in similar studies, effects were small and selection bias problems were significant. In addition, the study had significant respondent attrition over the 2 years. Nonresponse analysis, however, did not indicate systematic nonresponse bias.

METHODOLOGICAL CONSIDERATIONS

Several methodological considerations for the Followup Study of the Student Support Services Program have emerged from previous evaluations of SSS and SSS-like programs. Selection bias is of particular concern when evaluating the effects of a program such as SSS, where participants are self-selected. In effect, this selection bias makes it difficult to determine whether participation in the support service itself caused the observed difference between participants and the comparison group, or whether other factors related to the selection procedures were responsible for the observed effects. For example, in the 1983 SDC study those students who participated in nonacademic services, seemingly more successful than those receiving academic services, may have been stronger academically coming into the project.

Exhibit 3-7. Key First-Year Findings of the 1983 SSS Evaluation

The key findings of the first-year study included the following:

- SSDS (SSS) services were focused, as intended, on economically and educationally deprived students.
- There was some evidence of beneficial program impact on participating students.
  - Students receiving a full range of SSDS services were more likely to persist through their freshman year than were students receiving few or no services.
  - Students receiving more services were likely to attempt and to complete more course units.
  - Students receiving a full range of SSDS services had lower grade point averages than students receiving fewer services, but this appeared to be a selection effect rather than a negative effect of the services; i.e., projects tended to concentrate services on students with poorer entry skills.
  - Minority and low-income participants received lower grade point averages than others and took fewer course units, but their persistence through the freshman year was no less.
  - Students receiving more financial aid were more likely to persist through their freshman year, and they tended to attempt and complete more course units and to obtain higher grades. (SSDS projects do not provide or directly arrange financial aid for students, but they may refer students to potential sources of aid.)
- With regard to SSDS (SSS) project characteristics:
  - Most project directors were quite experienced and tended to be members of the minority groups, with more than half of them black.
  - Many projects had relatively small numbers of regular professional staff members, most of whom were fairly experienced, augmented by substantial numbers of students who worked part time as tutors, peer counselors, etc.
  - The average project had 414 participating students, approximately 70 percent of whom were from minority groups, and a total annual budget of around $132,000. Some projects received funding from state and/or local sources, but on the average, federal funding accounted for almost 80 percent of the total project budget.
  - Most projects provide services during the summer as well as during the regular academic year.
  - The average participating student received some type of project service 14 times during the academic year and had an average total participation time of about 14 hours. Larger projects tended to have lower average cost per student hour of services. About half the project students received tutoring; their average total amount of tutorial time over the academic year was about 9 hours. Approximately a third of the project students received special group instruction; the average total period of such instruction for this subgroup was around 20 hours. Roughly two-thirds of participating students received counseling and three-fourths received orientation and/or cultural-relations services, but the total duration of such services over the year was typically quite small (e.g., 1 to 4 hours).

Another methodological consideration is the loss of followup information in a longitudinal study through sample attrition. The SDC study had significant respondent attrition over the 2 years; approximately 40 percent of the followup surveys were returned by students. Nonresponse analysis, however, did not indicate systematic nonresponse bias. In the 1975 ETS study, however, nonresponse from sampled institutions and students introduced bias into the study's findings and limited their generalizability. Nonresponse analysis found that institutions with SSS programs were more likely to respond than were those without SSS programs. Institutions without accreditation problems had a higher response rate, and community colleges were less likely to respond than were other institutions. At the student level, only 67 percent of student questionnaires were returned. The authors suggested that with this response rate, certain classes of institutions were unrepresented, having provided no student data, while other classes of institutions were underrepresented, having provided only a small proportion of the suggested sample size. Therefore, extending the findings of this study to all institutions of higher education would probably overestimate the amount of programmatic activity offered for disadvantaged students and underrepresent both institutions providing 2-year academic or vocational programs and those with accreditation problems (Davis, Burkheimer, and Borders-Patterson, 1975).

Another issue for consideration is how to define and interpret retention, or persistence, rates. One issue is the determination of how retention rates account for students who leave school but reenroll at a later point. Students in the 1980s did not enroll continuously to graduation; several may have worked for one or more terms and returned to college later. This is especially true of those for whom finances were a concern (Guthrie, 1992). Further, recent data from the National Center for Education Statistics indicated that leaving school temporarily was also not uncommon in the 1990s. Nineteen percent of beginning postsecondary students whose goal in 1989-90 was a bachelor's degree had left school and subsequently reenrolled by early 1992 (U.S. Department of Education, 1994). A second issue involves accounting for transfer students in retention rates. This issue is of particular importance when interpreting retention rates from a single institution, which makes it impossible to distinguish dropping out, a negative outcome, from transferring, which can be a positive outcome.

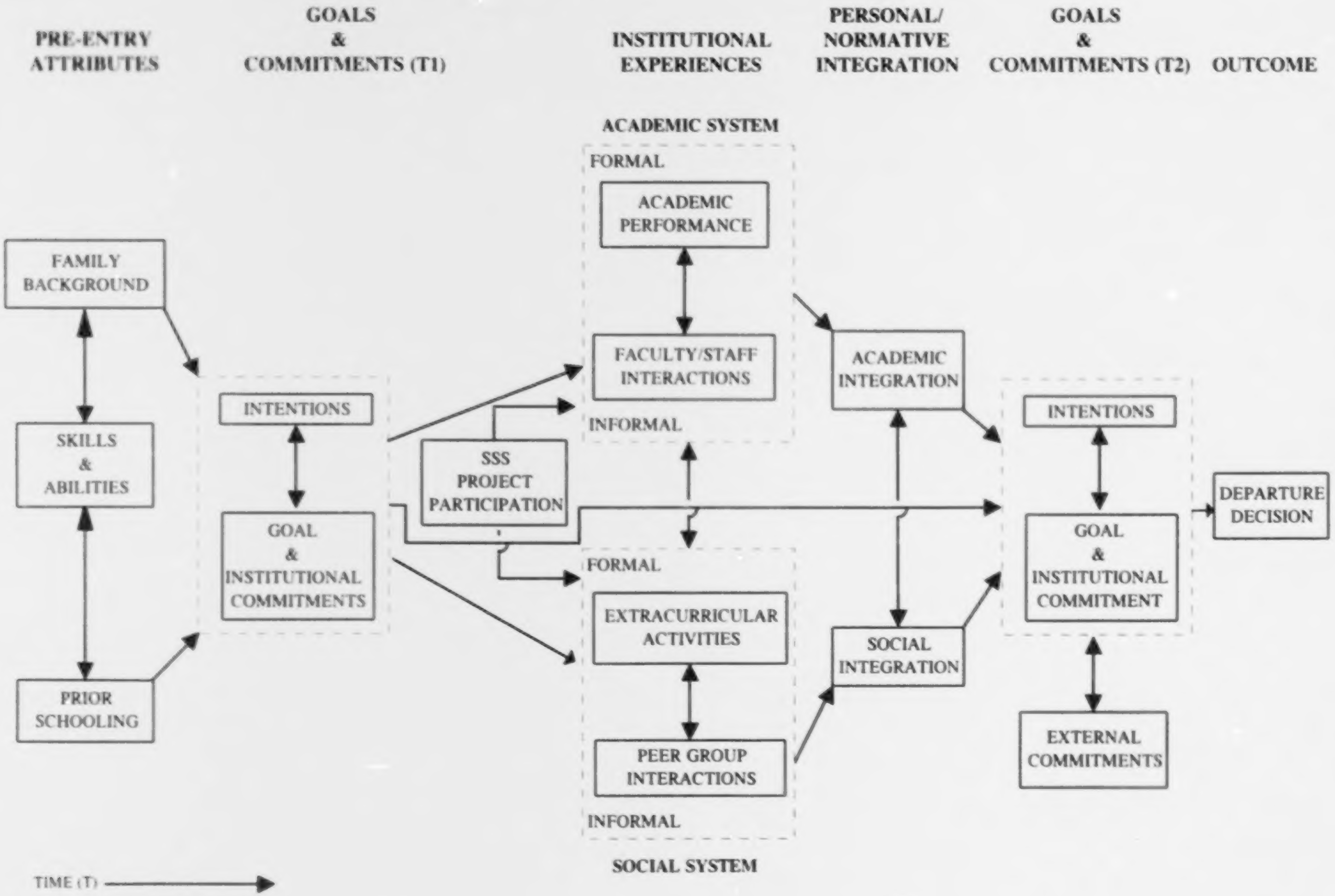
IMPLICATIONS OF STUDIES ON COLLEGE PERSISTENCE

General studies of student persistence show the importance of academic factors as well as noncognitive and student integration factors in predicting retention. Policies promoting social and academic integration and increasing time spent on course work are viewed as having the most potential for increased retention of disadvantaged students. In previous studies differences in persistence and GPA outcomes between students receiving and not receiving SSS and SSS-like services, when they were found, have been small and to some extent inconsistent.

SSS programs must be viewed in the context of the wider institutional environment in which they are operating, including the overall institutional climate and policies toward disadvantaged students. A number of findings indicate that students receiving extensive remedial services have less positive outcomes than other eligible students. The extent to which those most academically needy or most at risk are the students chosen or self-selected to obtain extensive remedial services, and, conversely, those receiving nonacademic services may be less academically needy, is unknown.

Past studies have been hampered due to student attrition in both the participating and comparison groups, and because long-term effects are not usually studied. Any model of the impact of SSS programs must take into account the interaction of the SSS program with a wide variety of student, institutional, and external factors. For example, one might insert the SSS project experience into the Tinto model of student departure (see exhibit 3-8).

Exhibit 3-8. Adaptation of Tinto's model of institutional departures to include SSS


PRE-ENTRY ATTRIBUTES
GOALS & COMMITMENTS (T1)
INSTITUTIONAL EXPERIENCES
PERSONAL/ NORMATIVE INTEGRATION
GOALS & COMMITMENTS (T2)
OUTCOME
ACADEMIC SYSTEM
FORMAL
ACADEMIC PERFORMANCE
FAMILY BACKGROUND
FACULTY/STAFF INTERACTIONS
ACADEMIC INTEGRATION
INTENTIONS
INFORMAL
INTENTIONS
SKILLS & ABILITIES
SSS PROJECT PARTICIPATION
DEPARTURE DECISION
GOAL & INSTITUTIONAL COMMITMENTS
GOAL & INSTITUTIONAL COMMITMENT
FORMAL
EXTRACURRICULAR ACTIVITIES
SOCIAL INTEGRATION
PRIOR SCHOOLING
EXTERNAL COMMITMENTS
PEER GROUP INTERACTIONS
INFORMAL
SOCIAL SYSTEM
TIME (T)

Source: Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition.* Chicago: University Press, p. 114.

4. STATISTICAL OVERVIEW OF THE STUDENT SUPPORT SERVICES PROGRAM

The first part of this chapter provides an overview of the Student Support Services program from its inception in 1970 through 1995. It highlights trends in program funding, fluctuations in the number of funded projects, and changes in the number of students served. The second part presents aggregated data on SSS projects that filed 1994 performance reports. Data are presented on the characteristics of institutions having SSS projects, the types of students that participate in these projects, and the services received by these participants. The chapter concludes with a discussion of key legislative and regulatory changes that have affected the program over the past 25 years.

HIGHLIGHTS

- In constant 1990 dollars, SSS program funding went from its initial funding level of $33.7 million in 1970 to $123.1 million in 1995. Funding in current dollars was $10 million in 1970 and $143.5 million in 1995.
- The number of projects funded expanded from 121 projects in 1970 to 706 projects in 1995.
- In constant 1990 dollars the average grant size declined since 1970, going from $278,393 in 1970 to $174,365 in 1995.
- Changes in the Higher Education Act in 1992 established a minimum grant award of $170,000 (unless the institution requested less), and in 1992 approximately half of the projects were funded at the minimum level.
- The total number of students served by the SSS program has risen from 30,000 in 1970 to 165,561 in 1995. The number of students served peaked at 181,368 in 1981.
- The average number of students served per project has generally ranged from 200 to 300 with an average of 235 students being served per project in 1995.
- The level of per-participant funding (in constant 1990 dollars) was highest in 1970 at $1,123, tumbled to $507 in 1981, and reached $744 in 1995. In 1995 current dollars, funding per participant was $867.

- In 1994, approximately 24 percent of all higher education institutions serving freshmen had SSS projects.
- Because SSS projects tended to be located in larger schools, about 34 percent of all freshmen attended institutions having SSS projects.
- SSS projects tended to be concentrated in 4-year institutions, public institutions, institutions enrolling more than 20,000 students, and institutions with 50 percent or more minority enrollment.
- Over 40 percent of doctoral institutions compared with 14.9 percent of baccalaureate institutions and 21.7 percent of 2-year institutions had SSS programs. Relatively few highly selective institutions (18.5) percent had SSS projects.
- Minority SSS participants composed 54.4 percent of the SSS student population, whereas minority populations represented only 24.5 percent of the total undergraduate population.
- At the time just prior to 1992 reauthorization, SSS institutions were required to ensure that each participant would "receive" full financial aid. The 1992 reauthorization legislation amended this requirement to say that full financial aid only needed to be "offered" and that participants could decline the aid package.
- During the 1993 grant awards, about 90 percent of the existing SSS projects received re-funding and about 70 new projects received grants.
- Changes to the reauthorization in 1992 were designed to provide for/allow increased coordination with other institutional student service efforts.

SSS PROGRAM FUNDING, PROJECTS, AND STUDENTS SERVED

THE SSS program experienced rapid growth in terms of funding, the number of projects receiving grants, and the number of students served during the 1970s. During the 1980s, there was a decline in the real growth of project funding while the number of projects continued to grow. The 1990s have seen a stabilization in the number of projects, an increase in the number of students served, and an increase in program funding (in constant 1990 dollars) over the levels of the 1980s (table 4-1). These changes are discussed in greater detail below.

SSS program funding. Table 4-1 and figure 4-1 summarize data on overall federal support for SSS. Funding growth occurred in two periods—in the decade following the start of SSS and since 1987. In constant 1990 dollars, funding doubled from less than $50 million in the early 1970s to $99 million in 1979. Support declined to under $80 million in 1983 but rebounded to $91 million by the end of the decade. In 1991, after a large single-year increase, funding regained and surpassed the 1979 level. Since 1992, funding has grown at about the same level as inflation. In constant 1990 dollars, total SSS program funding was $123.1 million in 1995, and in current dollars it was $143.5 million.

Table 4-1
Funding of SSS projects, number of projects, average grant amount per project, and average number of students served per project: 1970-95

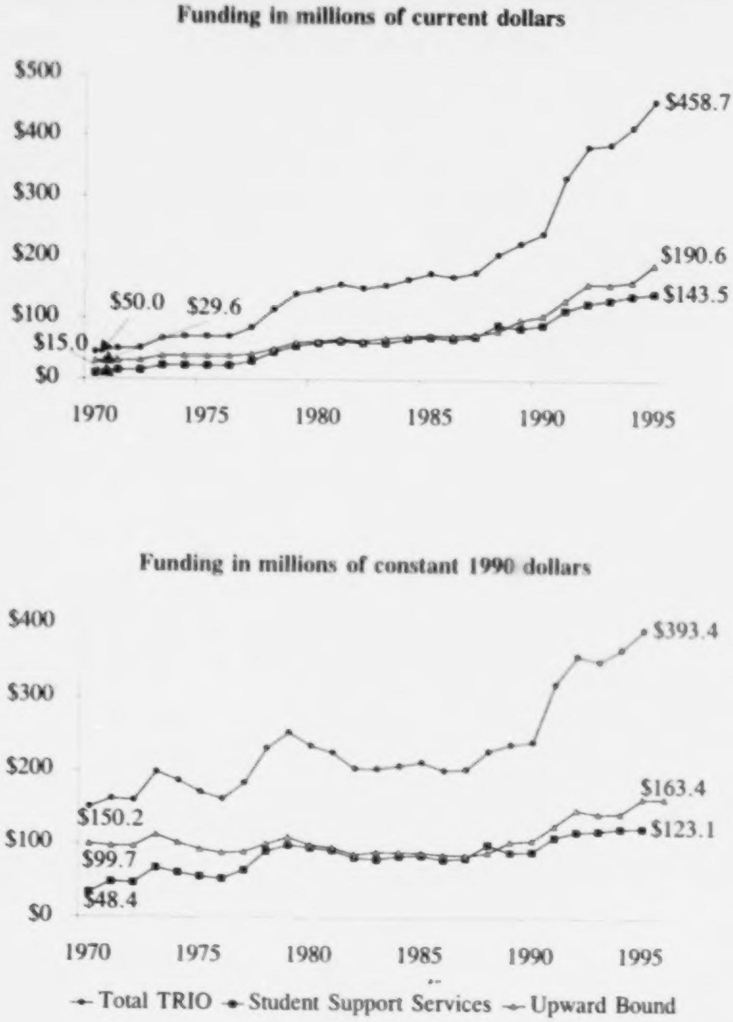
Fiscal year	Funding in millions of current dollars[1]	Funding in millions of constant (1990) dollars	Number of SSS projects	Average grant amount (current dollars)	Average grant amount (constant 1990 dollars)	Total number of students served[1]	Average number of students served per project	Funding per participant (current dollars)	Funding per participant (constant 1990 dollars)
1970-71	$10.0	$33.7	121	$82,645	$278,393	30,000	248	$333	$1,123
1971-72	15.0	48.4	190	78,947	254,776	49,921	263	300	970
1972-73	15.0	46.9	207	72,464	226,579	63,112	305	238	743
1973-74	23.0	67.7	323	71,207	209,613	73,951	229	311	916
1974-75	23.0	61.0	331	69,486	184,216	86,400	261	266	706
1975-76	23.0	55.9	327	70,336	170,873	89,753	274	256	623
1976-77	23.0	52.8	366	62,842	144,348	93,452	255	246	565
1977-78	30.0	64.7	372	80,645	173,933	123,092	331	244	526
1978-79	45.2	90.6	491	92,057	184,538	147,648	301	306	614
1979-80	55.0	99.0	557	98,743	177,765	165,222	297	333	599
1980-81	60.0	95.2	595	100,840	159,949	172,071	289	349	553
1981-82	63.9	91.9	608	105,099	151,115	181,368	298	352	507
1982-83*	60.7	82.2	621	97,746	132,387	150,622	243	403	546
1983-84*	60.7	79.7	634	95,741	125,636	141,686	223	428	562
1984-85*	67.0	84.3	647	103,555	130,266	141,585	219	473	595
1985-86*	70.2	85.3	660	106,364	129,198	154,000	233	456	554
1986-87	66.9	79.8	660	101,333	120,842	153,000	232	437	521
1987-88	71.1	81.8	663	107,240	123,382	152,000	229	468	538
1988-89	90.7	100.2	716	126,718	140,000	163,394	228	555	613
1989-90	85.4	90.0	707	120,750	127,274	164,282	232	520	548
1990-91	90.9	90.9	704	129,119	129,119	124,286	177	731	731
1991-92	115.2	110.6	704	163,679	157,069	163,049	232	707	678
1992-93	127.1	118.4	703	180,797	168,426	165,434	235	768	716
1993-94	132.1	119.5	700	188,743	170,718	164,024	234	805	729
1994-95	139.2	122.8	706	197,153	173,872	165,282	234	842	743
1995-96	143.5	123.1	706	203,314	174,365	165,561	235	867	744

*Estimated.

[1] Numbers have been rounded, but unrounded numbers were used in additional calculations (i.e., funding in constant dollars, grant awards, and funding per participant).

SOURCE: Calculated from information from the U.S. Department of Education, Division of Student Services, and National Council of Educational Opportunity Associations (NCEOA).

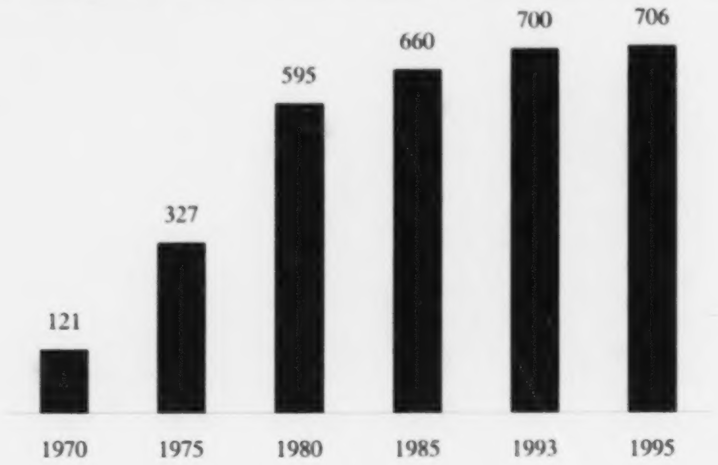
Figure 4-1
Funding for SSS, Upward Bound, and Total TRIO in current and in constant 1990 dollars: 1970-95



SOURCE: U.S. Department of Education, Division of Student Services, and National Council of Educational Opportunity Associations(NCEOA).

Number of projects funded. Funding increases during the 1970s were accompanied by large increases in the number of SSS projects (figure 4-2), rather than increases in allocations to existing projects. Prior to the 1990s, federal policy generally supported adding institutions to the SSS program, even when additional funding was not available. The program expanded from 121 projects at its inception to 600 projects by 1980. By 1990, there were over 700 SSS projects despite the decline in funding (in constant 1990 dollars) experienced in the 1980s. Since the 1990s, however, efforts have been made to stabilize the number of SSS projects despite some increases in funding.

Figure 4-2
Number of SSS projects at institutions of higher education: Selected years, 1970-95

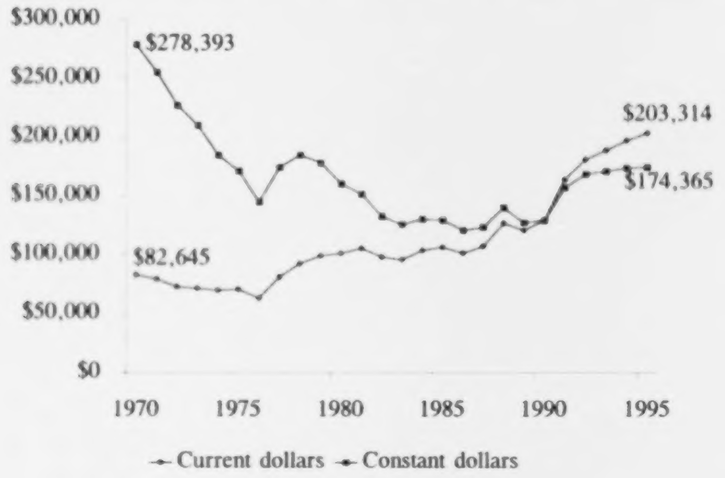


NOTE: In 1990 there were 704 projects.

SOURCE: U.S. Department of Education, Division of Student Support Services, and National Council of Educational Opportunity Associations (NCEOA).

Average project grant award. The average SSS project grant amount in constant 1990 dollars has remained below its 1970 level (figure 4-3). The last 5 years, however, have seen increases in the average grant awards but these increases have failed to restore funding per project to its original level. In constant 1990 dollars, the average grant size in 1970 was $278,393, as compared to $174,365 in 1995. In 1995, in current dollars the average grant size was $203,314. Changes in the Higher Education Act in 1992 established a minimum grant size of $170,000 (unless the project requested less). In 1992, only about half of the projects were at the $170,000 level. A few projects, however, had grants of over $300,000.

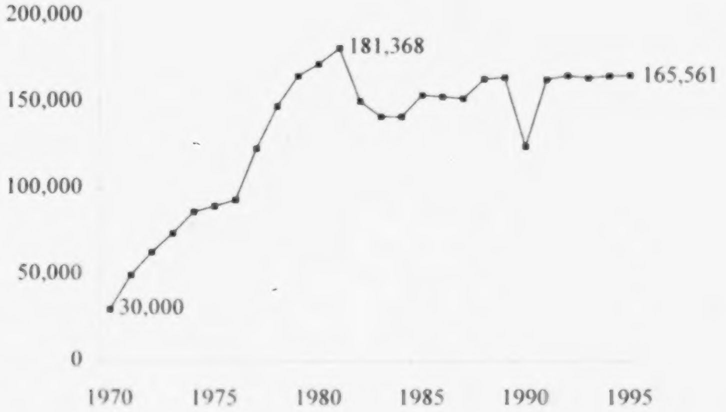
Figure 4-3
Average SSS grant size in current and constant 1990 dollars: 1970-95



SOURCE: Calculated from information from the U.S. Department of Education, Division of Student Services, and National Council of Educational Opportunity Associations (NCEOA).

Total students served. The total number of students served varies based on the number of projects, the size of the institutions awarded grants, eligibility regulations, and decisions by project staffs and the Department of Education about the types of services they wish to fund or encourage. The numbers served grew steadily during the program's early days, beginning with 30,000 students in 1970 and reaching a peak of 181,368 students in 1981 (figure 4-4). Between 140,000 and 160,000 students were served during the remainder of the 1980s. To some extent the decline in the total number served occurring in the early 1980s was related to changes in the reauthorization legislation that stipulated more specific eligibility requirements. It also reflected the decline in total constant dollar funding occurring in this period. The number of students served during the last 5 years has remained above 160,000 reaching 165,561 students in 1995.

Figure 4-4
Total students served by SSS projects: 1970-95

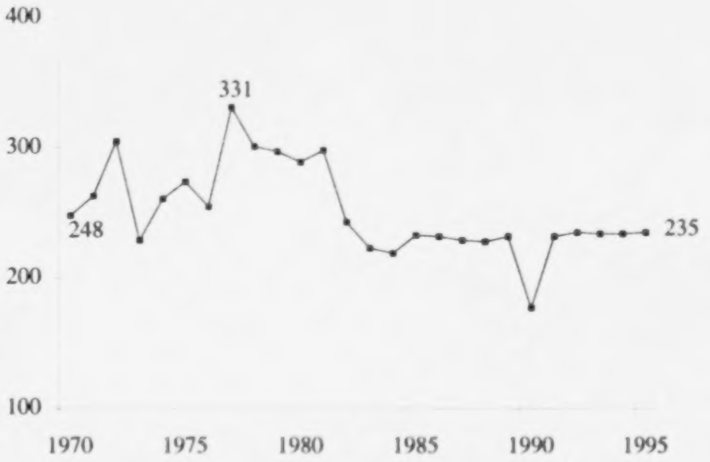


SOURCE: Calculated from information from the U.S. Department of Education, Division of Student Services, and National Council of Educational Opportunity Associations (NCEOA).

Students served per project. The target number of participants to be served by a single project is outlined in the grant proposal and is "finalized" as part of the negotiation process after grants have been awarded. The average number of students served per project has generally ranged between 200 and 300 over the program's history (figure 4-5). In 1995, the average number of students served per project was 235.

As will be seen from the descriptive information on the level of service received, students vary in the amount of service received both over projects and within projects (see chapter 5).

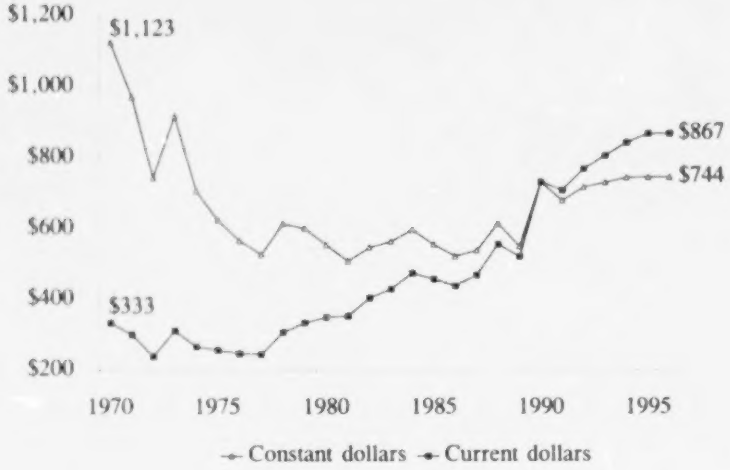
Figure 4-5
Average number of students served per SSS project: 1970-95



SOURCE: Calculated from information from the U.S. Department of Education, Division of Student Services, and National Council of Educational Opportunity Associations (NCEOA).

Per-participant project funding. While overall SSS program funding has almost quadrupled (in constant 1990 dollars) since 1970, the total number of students served has grown to over six times the original level. This translates to a decline in the average funding per student. This decrease in per-participant funding began during the 1970s and continued through the early 1980s (figure 4-6) as the number of projects and participants grew and overall funding declined. As the 1980s progressed, the total number of students served declined somewhat and the funding per student increased slightly. In the 1990s, funding per student in constant 1990 dollars has continued to increase as overall funding has increased and the number of projects has stabilized. Per-participant funding, however, has yet to return to its original level. The average amount per student served began at $1,123 (in constant 1990 dollars) in 1970. In 1995, average funding was $744 (in constant 1990 dollars) and $867 (in current 1995 dollars) per student served. In constant dollars, this represents a 40 percent decline in per-participant funding levels from the initial levels.

Figure 4-6
Amount of funding per student served by SSS projects in current and constant 1990 dollars: 1970-95



SOURCE: Calculated from information from the U.S. Department of Education, Division of Student Services, and National Council of Educational Opportunity Associations (NCEOA).

SSS Institutions, Participants, and Service Offerings

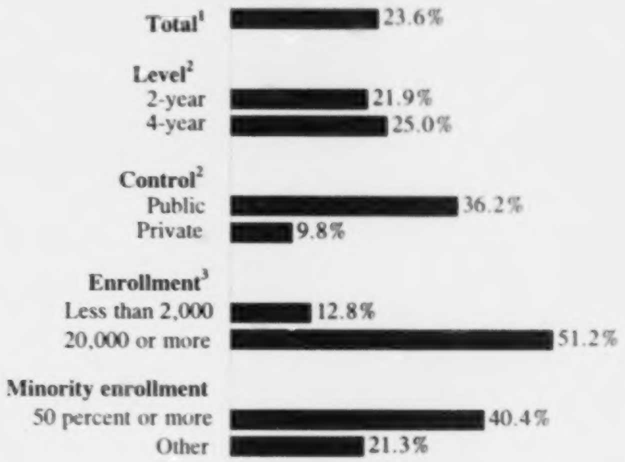
This section examines the characteristics of institutions having SSS projects, the types of students that participate in these projects, and the services received by these participants. The information is based on the annual performance reports submitted by each SSS project. These data have been used in conjunction with data available through the Integrated Postsecondary Education Data System (IPEDS) to produce the following results.

SSS Institutional Characteristics

In 1994, just over 700 SSS institutions returned performance data reports to the U.S. Department of Education. This section compares these institutions with other higher education institutions. The institutional universe used for comparison purposes included all higher education institutions (IHE) with an enrollment that is at least 1 percent freshmen, with the exception of some specialty schools that typically do not offer programs that receive SSS grants. Thus, a total of 3,004 higher education institutions were examined.

SSS projects by institutional level and control. In 1994, approximately 24 percent of all IHE institutions serving freshmen[1] had SSS projects (figure 4-7). Projects were more likely to be in public than private institutions (36 percent of public compared with 10 percent of private). Projects were almost equally likely to be found in 2-year and 4-year institutions, with 22 percent of 2-year and 25 percent of 4-year colleges having projects (table 4-2).

Figure 4-7
Percent of total higher education institutions serving freshmen that have SSS projects, by selected institutional characteristics: 1994



[1] Based on 708 SSS institutions reporting data.

[2] Based on 706 SSS institutions reporting data.

[3] Based on 701 SSS institutions reporting data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

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[1] These institutions only include higher education institutions serving at least 1 percent freshmen. In addition, selected specialty schools were not included as they do not offer programs that typically receive SSS support.

Within the group of SSS institutions, 56.7 percent were 4-year institutions and 43.3 were 2-year institutions (table 4-2). When these institutions were examined by level and control simultaneously, the highest concentration of SSS projects occurred in 2-year, public institutions (41.2 percent). Four-year, public schools had the second highest concentration of SSS projects containing 38.7 percent of the total projects.

Table 4-2

Number of SSS institutions currently funded and number of total higher education institutions serving freshmen, by selected institutional characteristic: 1994

Institutional characteristic	Higher education institutions serving freshmen		Institutions with SSS projects		Institutions with SSS as a percentage of corresponding higher education institutions serving freshmen
	Number	Percent	Number	Percent	
Total institutions	3,004	100%	708	100%	23.6%
Institution level by control[1]					
Two-year	1,400	46.6	306	43.3	21.9
Public	1,016	33.8	291	41.2	28.6
Private	384	12.8	15	2.1	3.9
Four-year	1,602	53.4	400	56.7	25.0
Public	542	18.1	273	38.7	50.4
Private	1,060	35.3	127	18.0	12.0
Institution control[1]					
Public	1,558	51.9	564	79.9	36.2
Private	1,444	48.1	142	20.1	9.8
Institution enrollment[2]					
Less than 2,000	1,395	46.5	178	25.4	12.8
2,000 - 7,999	1,065	35.5	300	42.8	28.2
8,000 - 19,999	414	13.8	160	22.8	38.6
20,000 or more	123	4.1	63	9.0	51.2
Percent minority enrollment					
50 percent or more	359	12.0	145	20.5	40.4
Other	2,645	88.0	563	79.5	21.3

[1] Based on 706 SSS institutions reporting.

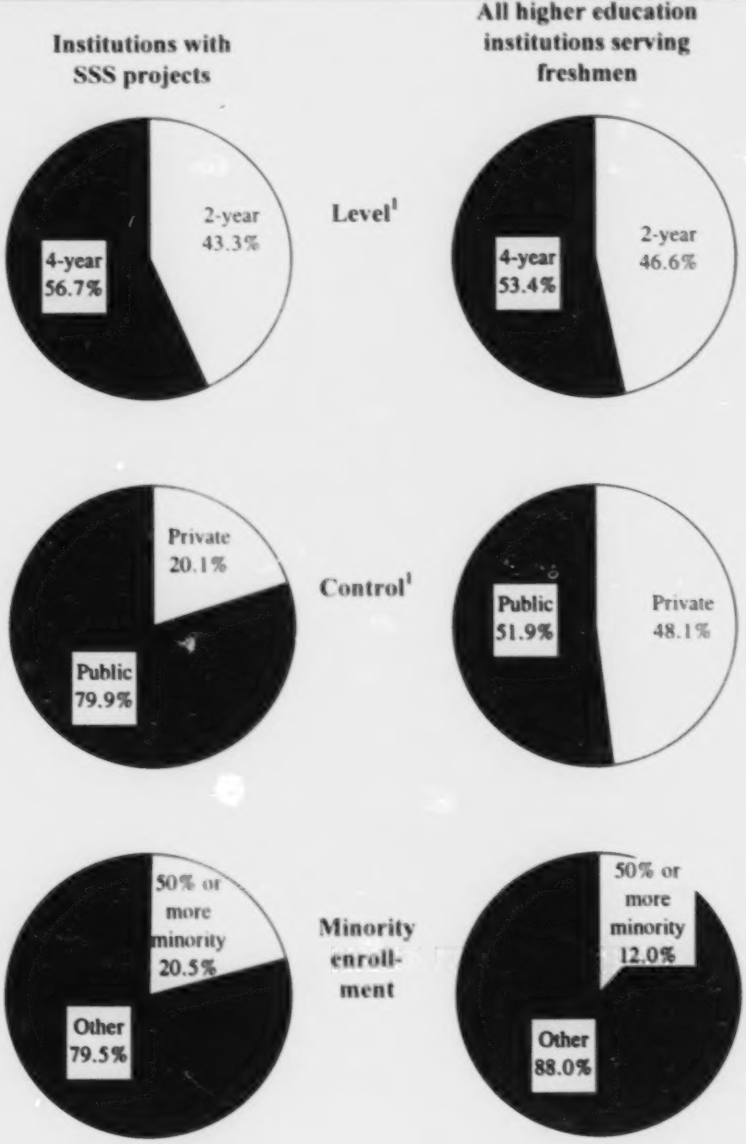
[2] Based on 701 SSS institutions reporting.

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

Figure 4-8 compares SSS institutions with all higher education institutions by selected institutional characteristics. For both groups, the majority of institutions were 4-year schools (56.7 percent and 53.4 percent). When they were examined by control, however, almost 80 percent of the SSS institutions were public colleges and universities, whereas the total group of institutions was almost divided evenly between public and private colleges and universities (51.9 percent and 48.1 percent, respectively).

Figure 4-8
Comparison of SSS institutions with all higher education institutions serving freshmen, by selected institutional characteristics: 1994

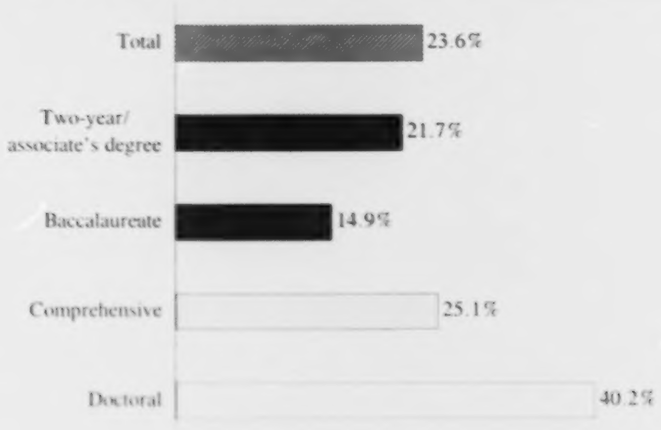


[1] Based on 706 SSS institutions and 3,002 total institutions reporting data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

Highest degree level. Figure 4-9 details the percentage of institutions having SSS projects based on the highest degree level offered by the institution. A larger percentage of the doctoral-granting universities than 4-year or 2-year colleges had SSS grants. For example, about 40 percent of doctoral institutions had SSS projects compared with only 15 percent of baccalaureate institutions and 22 percent of 2-year colleges.

Figure 4-9.
Percent of institutions having SSS projects, by highest level of degree offered: 1994



NOTE: Based on 703 SSS institutions and 2,292 non-SSS institutions reporting data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

Distribution of first-time freshmen enrollment. The distribution of enrollment by level and control among SSS participants approximated that for the total first-time freshmen enrollment, except that SSS participants had somewhat higher representation in public institutions and in 4-year colleges. First-time freshman enrollment (full time and part time) included over 2 million students in 1994 (table 4-3). About half of these students (52.1 percent) attended 4-year institutions. Among SSS students, 58.5 attended 4-year schools. A majority of both groups attended public institutions, with just over three-quarters (78.3 percent) of all first-time freshman attending public institutions, and 83.3 percent of SSS participants enrolling in public colleges and universities. Small differences in enrollment patterns become apparent when institutional level and control are considered simultaneously. The highest concentration of first-time freshmen (44.8 percent) were located in 2-year, public colleges and universities. Among SSS participants, on the other hand, the largest number were in 4-year, public institutions (43.2 percent).

Table 4-3
Percent distribution of total first-time freshmen and SSS participants, by institution level and control: 1994

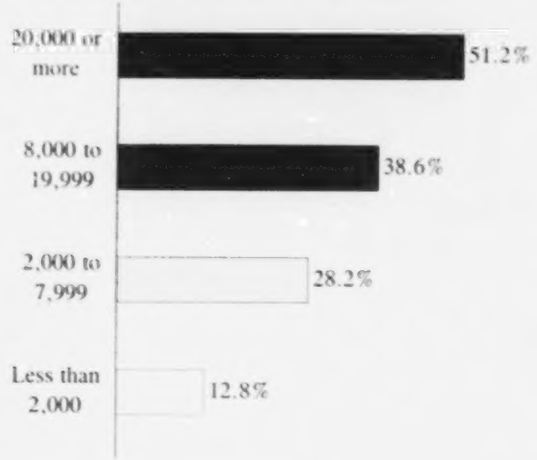
Institution characteristic	First-time freshmen enrollment (full and part time)		Total SSS participants	
	Number	Percent	Number	Percent of total SSS participants
Total[1]	2,163,697	100%	148,911	100%
Level of institution by control				
4-year	1,126,548	52.1	87,106	58.5
Public	724,244	33.5	64,208	43.2
Private	402,304	18.6	22,898	15.4
2-year	1,035,639	47.9	61,674	41.5
Public	968,895	44.8	59,614	40.1
Private	66,744	3.1	2,060	1.4

[1] Total includes 1,510 first-time freshmen and 131 SSS participants enrolled at SSS institutions not reporting data by level or control

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994

Total enrollment. SSS projects were more likely to be found in larger institutions. Over half (51.2 percent) of all institutions enrolling at least 20,000 students had SSS programs compared with only 12.8 percent for schools enrolling less than 2,000 students (figure 4-10). The largest number of SSS programs (42.8 percent) were based in institutions enrolling between 2,000 and 7,000 students (table 4-2).

Figure 4-10
Percent of institutions having SSS projects, by total institution enrollment: 1994



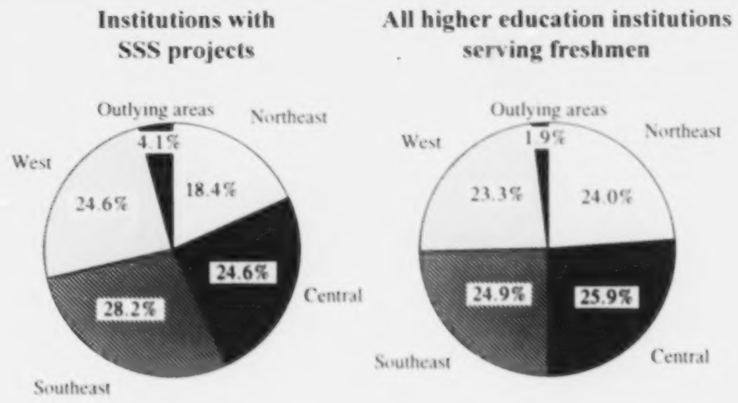
NOTE: Based on 701 SSS institutions and 2,296 non-SSS institutions reporting data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994

Minority enrollment. Just under half (40 percent) of the colleges and universities with more than 50 percent minority enrollment had SSS projects (figure 4-7). Among SSS institutions, 20.5 percent had minority populations of 50 percent or more compared with 12.0 percent at all higher education institutions (figure 4-8).

Geographic region. The distribution of SSS projects by geographic region approximated that of the distribution of higher education for the West and the Central regions (figure 4-11). Institutions in the Southeast, however, were more frequently represented among grant recipients than institutions in the Northeast. The Southeast has more SSS projects than any other region (28.2 percent), while the Northeast has the least (18.4 percent). Among all higher education institutions, the distribution of schools in these two areas was similar with 24.9 percent in the Southeast and 24.0 percent in the Northeast. These distribution differences were related to the presence of a large number of small private colleges in the Northeast and a relatively large number of institutions with 50 percent or more minority enrollment in the Southeast.

Figure 4-11
Comparison of SSS institutions with all higher education institutions serving freshmen, by regional distribution: 1994



NOTE: Because of rounding, percents may not add to 100. Based on 706 SSS institutions and 3,002 total institutions reporting data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

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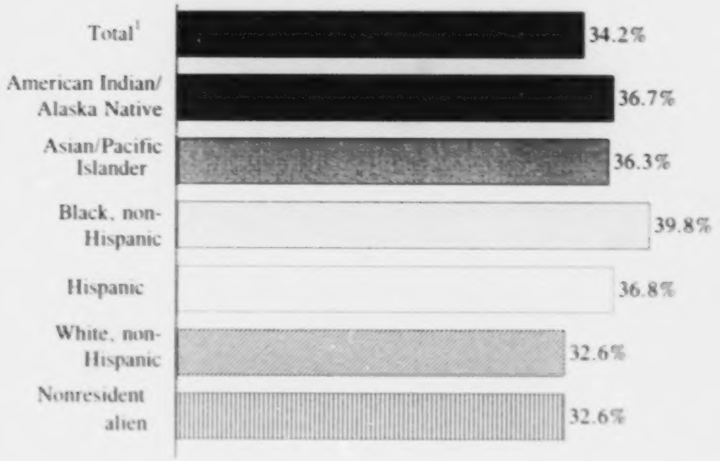
Percentage of students in SSS colleges. Because SSS grants were more frequently found in large institutions, the percentage of full-time-equivalent freshmen in institutions having SSS grants was larger than the percentage of institutions having grants. Overall, approximately 34.2 percent of freshmen attended higher education institutions having SSS projects (figure 4-12). By race/ethnicity, this percentage ranged from about 40 percent of black, non-Hispanic freshmen to about 33 percent of white, non-Hispanics being in colleges with SSS projects.

Figure 4-12.
Percent of freshmen in higher education institutions having SSS projects, by race/ethnicity: 1994

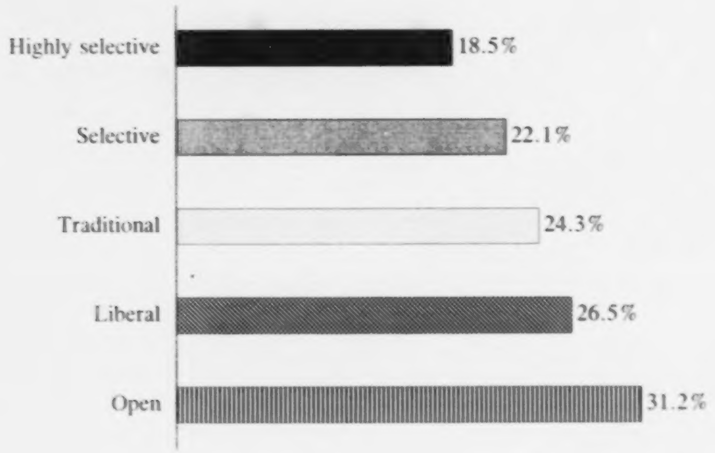


[1] Total includes 113,537 freshmen with unknown race/ethnicity. Of these students, 31.6 percent were enrolled in institutions having SSS projects.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

Selectivity. While SSS projects were more likely to be found in large, doctoral-granting institutions than in comprehensive or baccalaureate institutions, they were less likely to be found at the most selective institutions nationwide (figure 4-13). Among the institutions rated as highly selective, only 18.5 percent had SSS projects compared with 31.2 percent of institutions with open admissions policies. In general, as institutional selectivity declined, the percent of institutions with SSS projects increased.

Figure 4-13
Percent of institutions having SSS projects, by institution selectivity: 1994



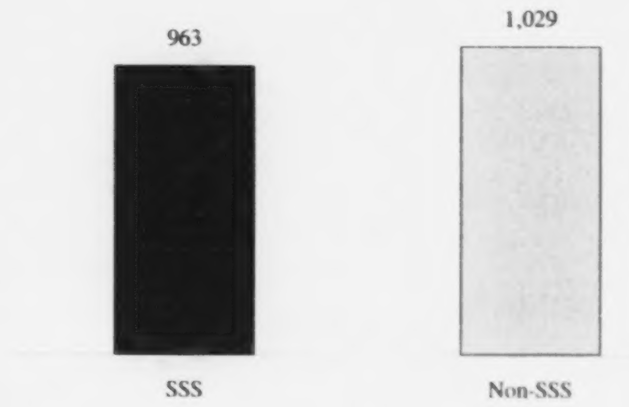
NOTE: Selectivity data were not available for 67 SSS institutions. Therefore, these percentages may not match percentages presented elsewhere in this report.

SOURCE: *Chronicle of Higher Education Data Book*, 1990; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

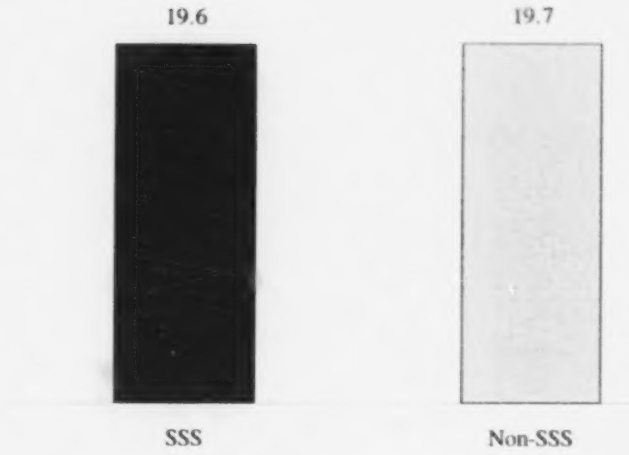
Standardized entrance exams. Institutional selectivity is often based, in part, on college admissions standardized test scores (figure 4-14). The mean scores on the Scholastic Aptitude Test (SAT) at SSS institutions was 963 compared with 1,029 for non-SSS colleges and universities. On the American College Test (ACT) the scores were 19.6 and 19.7, respectively.

Figure 4-14
Mean SAT and ACT scores of entering freshmen for SSS and non-SSS institutions: 1994

Mean SAT score



Mean ACT Score



NOTE: SAT and ACT institutional scores were calculated using 1990 data.

SOURCE: U.S. Department of Education, Higher Education Surveys, *Survey on Retention at Higher Education Institutions* (HES 14), 1991 (unpublished tabulations, survey conducted in 1990); and U.S. Department of Education, Division of Student Services, SSS Performance Data files, 1994.

SSS Student Characteristics

This section examines the characteristics of SSS participants as well as all undergraduate students enrolled in higher education institutions. Comparisons are made by race/ethnicity, overall minority representation, and sex.

Race/ethnicity. White, non-Hispanics formed the largest percentage of both the total undergraduates and SSS undergraduates. However, while 76 percent of the total undergraduates were white, non-Hispanic, only 46 percent of SSS participants were white, non-Hispanic (1994 data, figure 4-15). Minority SSS participants, taken together, composed 54 percent of the SSS student population, whereas minority populations represented 24 percent of the total undergraduate population.

Sex. Among the general population of undergraduates, in 1994, females were a somewhat higher proportion of the total than males (56 percent compared with 44 percent) (figure 4-15). Among SSS students, however, there was a much larger proportion of females (64 percent of the participants).

SSS Eligibility

Participation in SSS projects is limited to students meeting specific eligibility requirements. As mentioned previously, at least two-thirds of SSS participants must be low-income individuals who are first-generation college students[2] or individuals with disabilities. The remaining one-third of the participants can be either low-income individuals, first-generation college students, or individuals with disabilities. This section summarizes compiled performance report data on eligibility criteria and service participation. Summary information is also included from the 1991-92 service record analysis done for this study. In addition, some IPEDS data on the types of services offered at SSS and non-SSS institutions has been included.

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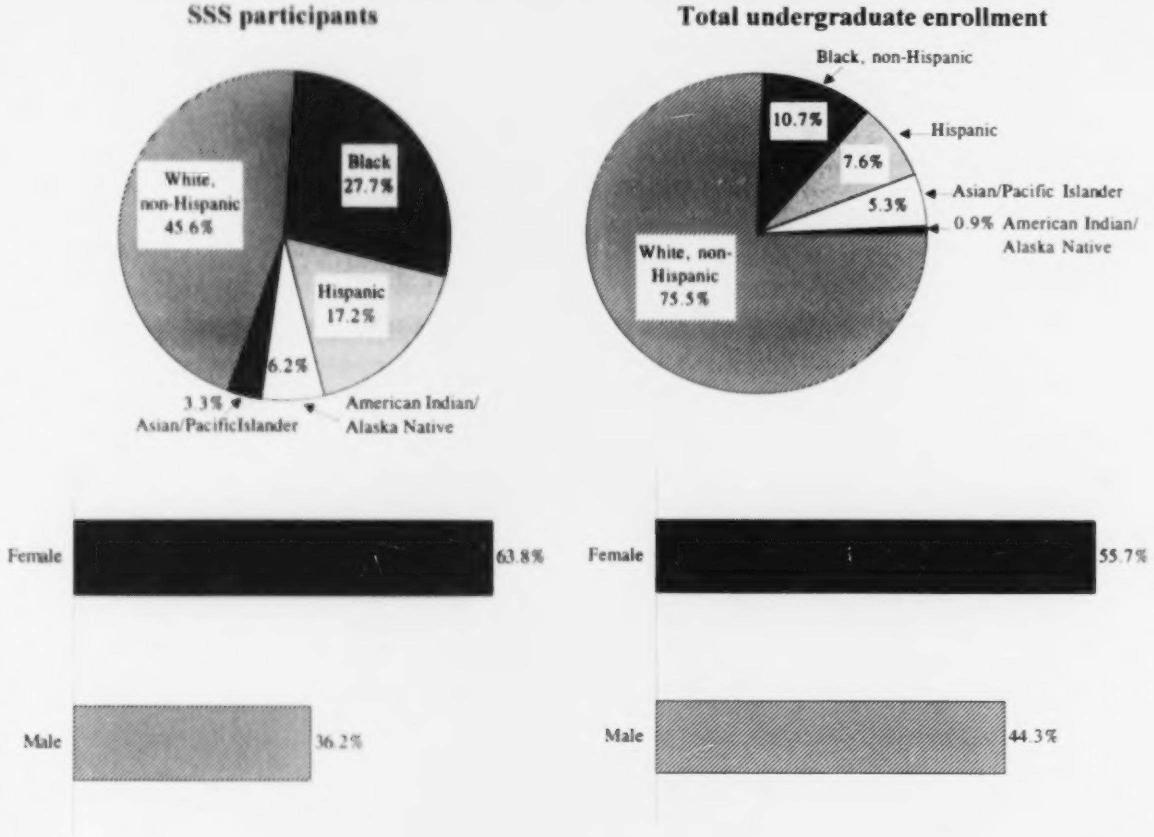
[2] First-generation college students are defined as individuals from families where neither parent holds a 4-year degree (or higher).

Figure 4-15
Percent distribution of SSS participants and total undergraduate enrollment, by race/ethnicity and sex: 1994

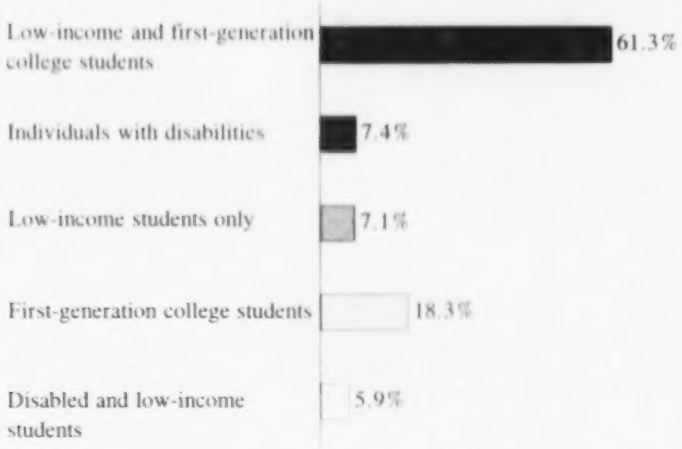


NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Fall Enrollment in Colleges and Universities"; and Integrated Postsecondary Education Data System (IPEDS) "Fall Enrollment" survey. As published in NCES, *Digest of Education Statistics: 1995*, 1995, table 201. U.S. Department of Education, Division of Student Services, SSS Performance Data files, 1994.

Eligibility criteria. Figure 4-16 describes SSS participants based on eligibility criteria. Based on the 1994 SSS Data Performance files, 61.3 percent of SSS participants were low-income[3] and first-generation college students. An additional 5.9 percent were low-income and disabled. Of the remaining participants, 18.3 percent were first-generation college students, 7.4 percent were individuals with disabilities who were not low income, and 7.1 percent were low-income students only.

Figure 4-16
Percent of SSS participants, by eligibility criteria: 1994



SOURCE: U.S. Department of Education, Division of Student Services, SSS Data Performance files, 1994.

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[3] A low-income individual is defined as an individual from a family whose taxable income for the preceding year did not exceed 150 percent of an amount equal to the poverty level as established by the Bureau of the Census.

Support Service Offerings and Participation

Table 4-4, using IPEDS data, details the types of support services offered by various institutions. The data indicate that institutions having SSS projects were somewhat more likely to also have other types of service programs, especially services for the disabled. For example, over three-fourths of SSS colleges had services for the hearing impaired compared with 57 percent of non-SSS schools. About half of institutions having SSS projects had on-campus day care compared with 30 percent of non-SSS institutions. Remedial programs were available at 95 percent of SSS institutions and 85 percent of non-SSS schools.

Table 4-4
Percent of SSS and non-SSS institutions offering selected service programs: 1994

Service program	Institutions		
	Total	SSS	Non-SSS
Job Training Placement Act (JTPA)[1]	45.6%	48.6%	44.7%
Remedial programs	87.3	94.9	84.9
Academic and career counseling	98.1	98.9	97.9
Employment services	90.3	93.0	89.5
Placement services	89.7	93.8	88.4
Assistance for the hearing impaired	61.3	76.7	56.6
Assistance for the visually impaired	62.2	76.4	57.8
Access for the mobility impaired	86.8	92.5	85.0
On-campus day care	35.3	52.1	30.1

[1] A few institutions responded "don't know" to this question, including 2.7 percent of total institutions, 3.0 percent of SSS institutions, and 2.6 percent of non-SSS institutions. In addition, data were not provided for 0.9 percent of total institutions, 1.1 percent of SSS institutions, and 0.7 percent of non-SSS institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postecondary Data System (IPEDS) "Institutional Characteristics" survey, 1994-95, and "Enrollment" survey, 1993-94; and U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

Performance report data on services received. Tables 4-5 and 4-6 present 1994 performance report data on SSS services received. The percentage of participants receiving SSS-related courses for institutional credit ranged from 2 percent for English proficiency to 12 percent for mathematics (table 4-5). A larger percentage, 4 to 24 percent (depending on the subject) received academic support in the various subjects. For example, 12 percent participated in mathematics for instructional credit and 8 percent received institutional credit for study skills courses. The percentage receiving services for academic support was higher, with 22 percent receiving mathematics and 24 percent receiving study skills training for academic support.

Table 4-5
Number and percent of SSS participants receiving instructional services for institutional credit or academic support: 1994

Instructional service	For institutional credit		For academic support	
	Number	Percent of total SSS participants	Number	Percent of total SSS participants
Reading	10,406	7.0%	17,398	11.7%
Writing	9,355	6.3	20,333	13.7
Study skills	12,429	8.3	35,974	24.2
Mathematics	17,621	11.8	32,748	22.0
English	11,823	7.9	18,882	12.7
English proficiency	2,687	1.8	6,626	4.4
Other	8,334	5.6	20,461	13.7

SOURCE: U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

Table 4-6 describes the number and percentage of SSS participants using selected other services. About 81 percent of total SSS participants received academic counseling and assistance services. Over half the participants (58 percent) used tutoring services, followed by financial aid counseling and assistance (53 percent), personal counseling (48.6 percent), cultural enrichment activities (41 percent), and career counseling (44 percent). Peer counseling and graduate school counseling were used by smaller percentages of participants (18 percent and 10 percent, respectively).

The project performance report data do not include information on the amount of services received. Tables 4-7 to 4-9 include

Table 4-6
Number and percent of SSS participants receiving selected services: 1994

Service	Number	Percent of total SSS participants
Academic counseling and assistance	121,280	81.4%
Career counseling	65,235	43.8
Financial aid counseling and assistance	78,543	52.7
Graduate school counseling	14,740	9.9
Peer counseling	26,063	17.5
Personal counseling	72,322	48.6
Cultural and academic enrichment activity	60,621	40.7
Tutorial assistance	86,520	58.1

SOURCE: U.S. Department of Education, Division of Student Services, SSS Performance Data file, 1994.

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summary data from the Service Record Analysis. These data were collected over the 1991-92 academic year from 28 indepth study sites that were part of the National Study. This information has been presented in detail in the Interim Report, Volume 2. Summary information from the service records on mean and median service levels for selected services is given below.

As can be seen from these tables the level of SSS service can best be described as moderate. For example, on average, about half of SSS participants received peer tutoring, and the average hours of service was 13 for the total group and 14 for the freshmen (tables 4-7 and 4-8). Professional counseling was received by about 79 percent of participants and the average hours of service was 2.5, although the average number of contacts was 7 (tables 4-7 to 4-9). Instructional courses that were part of the SSS project program were taken by about a quarter of SSS participants and the mean number of contact hours was 52 (tables 4-7 and 4-8).

Table 4-7
Percent of SSS participants at indepth study sites receiving each type of service: 1991-92

Type of service	Total	Freshmen	Nonfreshmen
Instructional courses	21.8%	30.5%	11.6%
Tutoring (professional)	15.3	15.6	15.0
Tutoring (peer)	47.3	45.7	49.1
Counseling (professional)	77.8	79.6	75.6
Counseling (peer)	11.9	13.3	10.4
Labs	13.4	16.3	9.9
Workshops	22.1	30.4	12.4
Cultural events	7.5	9.2	5.4
Services to handicapped	2.6	2.7	2.4

NOTE: The figures update the percentages reported in table 3-1 of the Interim Report, Volume 2, based on new information about the students' eligibility for the study. The differences between the two tables are minor.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Services, *Service Record Analysis, 1991-92*.

Table 4-8
Mean and median hours of contact per service type at indepth study sites: 1991-92

Type of service	Hours of contact for students having service[1]					
	Total		Freshmen		Nonfreshmen	
	Mean	Median	Mean	Median	Mean	Median
Total[2]	23.9	9.3	31.6	14.3	15.1	6.0
Instructional courses	51.9	35.8	56.8	37.3	36.8	31.6
Tutoring (professional)	4.0	1.1	2.8	1.0	5.5	1.7
Tutoring (peer)	13.0	8.0	13.8	8.0	12.2	7.3
Counseling (professional)	2.5	1.4	2.7	1.5	2.2	1.3
Counseling (peer)	1.7	0.6	2.1	0.9	1.2	0.5
Labs	11.7	6.0	12.1	6.5	10.7	5.6
Workshops	4.3	2.5	5.0	3.0	2.5	2.0
Cultural events	5.3	2.3	5.5	3.0	4.9	2.0
Services to handicapped	32.6	2.5	39.2	3.2	24.1	2.2

[1] These numbers should be considered in relationship to the percentage of recipients receiving the service. See table 4-7 for that information.
[2] These figures update the totals reported in table 3-9, table 3-10, and figure 3-12 of the Interim Report, Volume 2, which used an inappropriate denominator in calculating the means and medians.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Services, *Service Record Analysis, 1991-92*.

Table 4-9
Mean and median number of contacts per type of service for freshman and nonfreshman SSS participants: 1991-92

Type of service	Contacts per student having service[1]					
	Total		Freshmen		Nonfreshmen	
	Mean	Median	Mean	Median	Mean	Median
Total[2]	30.7	12	41.6	17	17.9	9
Instructional courses	69.1	38	77.9	43	42.3	35
Tutoring (professional)	5.2	3	4.1	2	6.6	3
Tutoring (peer)	11.6	7	12.4	8	10.7	7
Counseling (professional)	7.2	4	8.1	3	6.2	4
Counseling (peer)	4.3	3	5.1	4	3.0	2
Labs	9.5	6	9.2	6	10.0	6
Workshops	5.2	2	6.5	2	1.8	1
Cultural events	1.7	1	1.7	1	1.8	1
Services to handicapped	25.2	5	29.5	7	19.7	3

[1] These numbers should be considered in relationship to the percentage of recipients receiving the service. See table 4-7 for that information.

[2] These figures update the totals reported in table 3-7, table 3-10 and figure 3-12 of the Interim Report, Volume 2, which used an inappropriate denominator in calculating the means and medians.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Services, *Service Record Analysis, 1991-92*

About 9 percent had only one SSS service contact and about 30 percent had 5 hours of service or less (data not shown in table). The services provided by SSS can thus best be described as diverse and moderate in intensity.

Table 4-10 compares the service levels found in the 1991-92 service record analyses with those reported by the 1979-80 SSS evaluation study for similar services. These show roughly equivalent hours for counseling (2.6 in 1991-92 and 2.6 in 1979-80) and a small increase in tutoring (11.9 in 1991-92 and 9.1 in 1979-80).[4]

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[4] Differences in study methodology do not easily permit comparison of overall hours of service between the two studies.

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Table 4-10

Percent of SSS projects offering tutoring and counseling, percent of SSS students receiving them, and mean amount of services received: 1979-80 and 1991-92

Service received	SSS projects offering service	SSS students receiving service	Amount of service received by those having service	
	Percent	Percent	Contacts	Hours
1991-92[1]				
Tutoring	96%	57%	11.0	11.9
Counseling	100	81	7.6	2.6
1979-80				
Tutoring	96	51	NA	9.1
Counseling	100	67	NA	2.6

NA - Data not available.

[1] In 1991-92 data, professional counseling was combined with peer counseling, and professional tutoring was combined with peer tutoring.

SOURCE: 1979-80 data: Coulson, J., Bradford, C., and Kaye, J. Evaluation of the Special Services for Disadvantaged Students (SSS) Program, 1979-80 Academic Year, Systems Development Corporation, Santa Monica, California, August 1981. 1991-92 data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services, *Service Record Analysis, 1991-92*

DEVELOPMENT OF SSS PROJECT REQUIREMENTS

This section discusses SSS requirements and the 1992 changes to the reauthorization legislation. While SSS is not a service-specific federal program, projects are held accountable for implementing regulations established through federal legislation and the Department of Education. For example, projects are required to submit the yearly performance reports summarized above on the types of students served, and the types of services these students received. These reports also include information on the academic status of these students, and an indication as to whether they have left the institution. In the competition for renewing or receiving new grants (provided the proposed institution has participated in a SSS project during the previous 3 years), projects are awarded "prior experience points" based on meeting these requirements as well as meeting their individual project goals. The goals held by the 28 indepth study sites during the early 1990s are listed in the appendix to chapter 9. In 1996, the SSS project regulations were being revised by the Department of Education.

Historical Development of Participant Eligibility Requirements

Student Support Services has always been a program to serve disadvantaged college students. The initial SSS legislation required assurances from participating institutions that each student served by SSS was disadvantaged because of "a deprived educational, cultural, or economic background, a physical disability or limited English speaking ability." Prior to October 1981, however, these assurances were not tied to specific eligibility criteria. The broad eligibility criteria used during the early years of the program are displayed in exhibit 4-1.

Exhibit 4-1
Special programs eligibility criteria prior to October 1981

Upward Bound	Talent Search	Special Services[1]	Educational Opportunities
• Age 14-17 (veterans excepted); • U.S. citizen or national; and • Resides in target area; OR • Attends target school; and • Completed first year of secondary school and not entered 12th grade (veterans excepted).	• Age 14-27 (veterans excepted); • U.S. citizen or national; • Exceptional potential for success in post-secondary education; • Demonstrated aptitude for entry into an educational program; • Needs guidance/ counseling; and • Needs assistance in gaining admission or readmission to educational institution.	• Students enrolled or accepted at post-secondary institutions; • U.S. citizen or national; and • Individual with academic potential who needs remedial or special services as a result of a deprived educational, cultural, or economic background, a physical handicap, or limited English-speaking ability.	• Resident of area; and • U.S. citizen or national.

[1] Prior program name for Student Support Services.

SOURCE: Jung, S.M., Schubert, J.G., and Putnam, K. *Evaluability Assessment of the Special Programs for Disadvantaged Students.* Palo Alto, CA: The American Institutes for Research.

In 1980 the legislation authorizing TRIO was amended to include more specific eligibility criteria. These amendments, which became effective October 1981, stated that at least two-thirds of the participants must:

- be low-income[5] individuals who are first-generation[6] college students; or
- be individuals with disabilities.

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[5] Family whose taxable income for the preceding year did not exceed 150 percent of the poverty level.

[6] Both parents did not complete a bachelor's degree (or higher), or the parent with whom the student regularly resides did not receive a bachelor's degree (or higher).

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The remaining one-third of the participants could be either low-income individuals, first-generation college students, or individuals with disabilities. In addition, institutions had to determine that each participant had a need for academic support in order to pursue successfully a program of education beyond secondary school. Finally, the institution was also required to assure that each project participant would receive sufficient financial assistance to meet the student's full financial need.

The 1992 reauthorization amended the eligibility criteria in two ways. First, at least one-third of the individuals with disabilities had to be low-income individuals. Second, instead of requiring that each participant **receive** full financial aid, the language was amended to state that institutions only ensure that such aid be **offered**. Program participants are able to decline these offers which often include a substantial loan component.

Grant Selection Process

Potential grantees submit applications to the Department of Education with a description of the proposed project, a desired funding level, and the number of students the project will serve. Exhibit 4-2 displays a list of nine characteristics included in the 1990 grant application as being shared by the most successful SSS projects. This list was made available to all grant applicants with their application materials.

Applications are rated on a 100-point scale that considers the project's plan of operation, quality of key personnel, budget and cost effectiveness, adequacy of resources, evaluation plan, need for the project at the applicant institution, likelihood of success, and institutional commitment. Of the 100 points, 25 are given based on the need for the project, 40 for the project design, 30 for project resources, and 5 for budgeting. Applicants who have previously received SSS grants may earn up to 15 additional points based on their past success in meeting program requirements and project-established goals. These requirements and goals include serving the number of students agreed upon during grant negotiations and addressing student performance issues (i.e., grade point averages and student retention). Projects differ considerably with respect to the difficulty levels they pose for themselves in drafting their project goals.

Once all the applications have been evaluated, they are rank ordered based on the score they received (i.e., up to 115 points). This ranking determines which projects will receive funding. Thus, previous grantees are likely to obtain awards in later competitions based on the advantage provided by prior experience points. In cases where awards must be made among similarly rated applicants,

Exhibit 4-2

U.S. Department of Education suggestions for fiscal year 1990 applicants for Student Support Services funds

Experience has shown that the most successful Student Support Services projects have certain common characteristics. These characteristics may be summarized as follows:

1. Projects that have a strong institutional commitment to their objectives. This often takes the form of in-kind or cash contributions to enhance the opportunities that are available to students through the Student Support Services project.
2. Projects that are fully understood by and which work closely with all of the administrative and academic departments of a participating institution.
3. Projects that provide mechanisms for continually monitoring student performance, both in project sponsored academic programs and in regular course work being undertaken at the institution.
4. Projects that establish high standards and expectations for students, including the belief that all students, regardless of family background, can reach high levels of academic achievement.
5. Projects that follow up on their Student Support Services "graduates" by monitoring the progress and performance of those who have entered another postsecondary educational institution or graduate school.
6. Projects that give priority to the strengthening of basic and higher level skills of their Student Support Services participants in mathematics; science; English language literacy in reading, writing, and speaking; and foreign language literacy.
7. Projects that actively seek to improve equal educational opportunity and access for all students, particularly those who traditionally have not participated fully in higher education, including projects which address the special skill needs of members of racial or ethnic minority groups, women, and the handicapped.
8. Projects that specify a method of documenting eligibility, selection, participation need, services provided, and participant success.
9. Projects that establish a method of helping students obtain financial assistance in a timely manner; monitoring the participant's financial needs; and monitoring the grantee's performance in meeting its assurance to the U.S. Department of Education that, "...each participant enrolled in the project will receive sufficient financial assistance to meet the student's full financial need."

In recognition of these characteristics of successful program practices, the Secretary encourages applicants to incorporate these practices into their applications. Applicants should note that these characteristics are included only to assist them in developing potentially successful projects. The characteristics themselves in no way amend the selection criteria in 34 CFR 646.31.

Although these suggestions do not have extra points assigned to them, inclusion of these could assist an applicant in developing a stronger application.

SOURCE: U.S. Department of Education, Office of Postsecondary Education, *Application for Grants Under the Student Support Services Program*, Washington, DC, 1989.

the grant is awarded to the institution demonstrating the greatest need for the SSS program.

Based on the Department of Education's ability to award the full amount requested by the project, funding negotiations may take place following the award announcement. Funding grants are based on the amount requested, the scope of the project, the local cost of the project, and any support the project may receive beyond the grant award. These criteria may affect funding in a variety of ways. For example, in areas where staffing costs are relatively low, a project may be able to support a larger staff for the same amount of funding as a different institution facing higher costs. In addition, variation in service offerings may also affect costs. Institutions offering only one service may be able to serve more students for the same amount of money as one offering more comprehensive services. If the Department of Education is unable to award the full amount requested, a compromise will often be reached on the number of students that will be served by the project given funding availability.

During the 1993 grant awards, the SSS program did not have any additional funding to offer over the previous cycle's level. An effort was made to fund the same number of projects. Approximately 70 projects (almost 10 percent) of the previous grant cycle's participants did not receive new funding in 1993,[7] and an equal number of new projects were added. Thus, refunding occurred for approximately 90 percent of the projects. Prior experience points increase the chance that existing projects will be refunded.

If during a program cycle the SSS program receives funding increases, this money is used to provide the projects with cost of living adjustments (COLAs). During fiscal year 1993, all projects received a minimum grant of $170,000 (unless the project requested less). In both fiscal year 1994 and 1995, all projects received a 3 percent COLA. For a project receiving $170,000 in fiscal year 1993, this raised overall funding levels to $175,000 in fiscal year 1994 and to $180,000 in fiscal year 1995. In fiscal year 1996, the SSS program received level funding from the federal government so no COLAs will be awarded.

Summary of Changes in the 1992 Reauthorization

As previously noted, a number of changes made to the Higher Education Act legislation during the 1992 reauthorization affected the SSS program. Many of these changes were an outgrowth of concerns raised by the TRIO community through their national organization, the National Council of Educational Opportunity

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[7] Some projects choose not to seek refunding while others do not receive peer review scores high enough to lead to refunding.

Associations (NCEOA). Most of the 1992 changes impacted the whole TRIO program, including SSS. A key SSS-specific change was to change the participant financial aid assurance provision from "will receive" to "will be offered" sufficient assistance. The following list of changes were applicable to all TRIO programs:

- One-third of disabled students in the program were also required to be low income.
- Grants were to be awarded in rank order of score.
- The grant cycle was changed from 3 years to 4 years except for the top 10 percent of projects based on application scores. These projects receive 5-year awards.
- Minimum grant levels were established. For fiscal year 1993, the minimum SSS grant size was set at $170,000.
- Coordination with other programs at the same institution was encouraged regardless of funding sources. In addition, the Secretary of Education will not limit an institution's eligibility to receive funds because the institution sponsored a similar program.
- Consortia of institutions were allowed to compete for grants.
- The Secretary of Education was instructed to give 8 months notification of grant award prior to the start-up date of new projects.
- Projects no longer had to have a separate project director if the imposition of such a requirement would hinder coordination among programs.
- Ongoing evaluations were authorized.
- Training of new directors was mandated.
- Mentoring by faculty or upperclass students became a permissible service offering.

As indicated above the Department of Education is in the process of finalizing new regulations for the SSS program that reflect these legislative changes.

5. A PROFILE OF THE SSS PARTICIPANTS: THE FIRST THREE YEARS

This chapter presents a profile of the SSS participants in their first and third years of college. It provides a context for understanding the effects of the SSS program on performance by describing the backgrounds, attitudes, and experiences that the SSS participants brought to college and how those factors changed over time. We also describe those students who reported they enrolled in the third year and those who said they did not. This chapter is intended to provide a context for understanding the outcomes analysis presented in chapters 6 through 8.

Structure of the chapter. The chapter begins with an overview of the SSS freshman participants in the study, reviewing their background characteristics when they began college. In the next section we examine their retention to the third year of college by comparing their rates with national norms, when possible, and by examining their retention rates by key demographic characteristics. In the sections dealing with college life, we look at a wide range of activities and conditions among the SSS cohort in the third year, including majors, course-taking patterns, assessment of college careers, and plans for the future, followed by a section focusing on students' use of and attitudes toward these support services over the 3 years. We then look at the work patterns of SSS participants who remained enrolled and those who were not enrolled in the third year. A final section summarizes the predictors of third-year participation in college using Tinto's model of student departure as applied to disadvantaged students. As indicated in the literature review (chapter 3), the design of this research was guided by a perspective that views college retention and outcomes as a function of both the attributes students bring to college and experiences that occur once they enter the college environment. SSS is one part of this college environment.

Data within this chapter. To understand the personal situation of SSS participants, we utilize information from the two surveys of SSS participants. The first survey was conducted during the freshman year (1991-92) and the second was conducted in the summer to winter of 1994, after the participants should have completed their third year of academic studies. Students were interviewed regardless of whether they were still enrolled in school. We also use transcript data collected over the 3 years of college from the original schools the students attended and from any additional schools they reported attending. The overall response rates for both the initial baseline survey and the third year followup survey were 86 percent. The transcript response rate was 97 percent for the original schools and 90 percent for the additional schools.

Comparisons made in this chapter. Within this chapter, we make several types of comparisons. First, SSS participants are compared to all freshmen and to low-income disadvantaged freshmen to demonstrate the similarities and differences among these groups. We also compare SSS participants who were enrolled at some point in the third year with those SSS participants who were not enrolled. In addition, we compare SSS student service levels relative to those of the comparison group of students. Those differences cited in the text are statistically significant at the .05 level.

HIGHLIGHTS

- In addition to the formal eligibility requirements for SSS (low income and first-generation college), SSS participants have a number of "risk factors" that have been found to be associated with lower chances of college completion. In comparison with the national averages for college freshmen, SSS participants tended to be older, to be members of a minority group, to have had lower prior academic achievement, and to have dependent children.

- SSS projects appear to target those students who are most disadvantaged from among the overall student population at their institutions.

- Overall 80 percent of SSS participants who began at 4-year colleges and 61 percent of SSS participants who began at 2-year colleges were enrolled in the third year.

- While females were much more likely than males to be SSS participants, third-year retention rates for SSS male and female participants did not differ.

- Among the SSS students enrolled in the third year, 65 percent reported that they were juniors or above. Overall, SSS participants enrolled through the end of the third year earned a mean of 79.2 credits.

- By the end of the third year, about 30 percent of the SSS participants reported they had attended a postsecondary institution other than the one in which they were enrolled at the beginning of the study.

- There was a substantial difference in the GPAs of participants who remained enrolled in the third year and those that did not. The mean cumulative GPA for those still enrolled in the same institution was 2.6; it was 1.9 for those no longer enrolled.

- Between the first and third years, among enrolled students there was an increase in part-time enrollment (from 7 percent to 15 percent) and an increase in the percentage working (from 49 percent to 66 percent).

- Students who were enrolled 3 years later were more likely to report higher levels of interaction with faculty, institution staff, and college peers than those who were not enrolled. For example, of the participants enrolled in the third year, 76 percent reported that they sometimes (or often) talked with faculty, 65 percent said they met with an advisor concerning academic plans, and 65 percent indicated that they participated in study groups outside of class. For nonenrolled participants, only 61 percent had regular faculty contact, 54 percent met with advisors regarding their academic plans, and 50 percent participated in study groups outside of class the last time they were enrolled.

- In 1991-92, 82 percent of SSS participants received financial aid compared with 45 percent of students nationwide. In the third year, the same percentage of enrolled SSS participants had financial aid; however, more students reported supporting their education by working during the school year and taking out loans.

- When those not enrolled in the third year were asked the reason for not attending college, "not enough money" was the most frequently cited reason, with over half reporting it as a reason and 36 percent reporting it as the main reason. Other reasons were uncertainty about career goals and poor grades.

- Overall, almost two-thirds of the SSS participants indicated they would like to obtain a degree beyond the bachelor's level.

- Among enrolled third-year students, 71 percent reported that they would attend the same institution again. Sixty-seven percent of those not enrolled also said they would attend the same institution.

- Seventy-one percent of the enrolled students said they were above average with respect to the "drive to achieve," but only 58 percent of the nonenrolled agreed with this statement.

- SSS participants reported higher levels of supplemental service use than did comparison students. However, this difference in service use declined substantially after the freshman year. For example, 63 percent of these students received tutoring at some point during their first 3 years compared with 36 percent of comparison group members. In the first term, 46 percent of SSS participants reported use of tutoring compared with 20 percent of comparisons. By the spring 1994 term, 11 percent of SSS and 8 percent of comparisons reported use of tutoring. There was less difference between the SSS participants and the comparison group in levels of counseling use.

- Even among those not enrolled in the third year, 79 percent would like to obtain a bachelor's degree and 66 percent reported they expected to obtain a bachelor's degree. Among those enrolled in the third year, 91 percent reported they expected at least a bachelor's degree.

- SSS students tended to rate the services they received as more helpful than did the comparison group members who received the same services.

- Sixty-seven percent of enrolled SSS participants and 64 percent of enrolled comparison group members gave organized study group sessions with other students particularly favorable ratings. In addition, 64 percent of the enrolled SSS participants and 62 percent of the enrolled comparison group members gave computer-assisted study labs high ratings.

- About three-quarters of the SSS participants reported they were satisfied with the SSS program overall and about 81 percent reported they would recommend the program to others.

- SSS participants made several suggestions for improving the SSS program, including making the program more widely known, increasing the types of services available, and hiring more staff.

- Two-thirds of third-year enrolled SSS participants reported that they were working compared with 49 percent working during freshman year. Thirty-one percent of those employed were doing clerical/support work and 21 percent were in sales. About 47 percent said that the work was "closely" or "somewhat" related to their education, and only 17 percent considered the jobs to be permanent.

- Eighty-six percent of enrolled third-year SSS participants expected to pursue professional, management, or technical work 5 to 10 years after college. For nonenrolled students, only 69 percent said they had similar expectations. This was a decline from the 76 percent of this group that expected to pursue professional, management, or technical work 5 to 10 years after graduation when they were freshmen.

BACKGROUND CHARACTERISTICS OF SSS PARTICIPANTS

In the beginning (1991-92). In this section we review the background characteristics of the SSS participants and compare them to national freshman norms. As will be seen, in addition to the formal eligibility requirements, the SSS participants have a number of "risk factors" that have been found to be associated with lower chances of college completion. For a more detailed description of the characteristics of SSS participants, the reader is referred to Volume 2 of the Interim Report for the study.

Table 5-1
Entrance characteristics of SSS freshmen and of all freshmen: 1991-92

Entrance characteristic	SSS freshmen		CIRP data on all freshmen
	All	At 2-year institutions	
19 or younger	61	34	92
Women	67	69	53
Married	11	20	27
Separated/divorced	9	19	2
Dependent children	22	48	24
White	41	36	80
Black	31	45	9
Hispanic	22	14	6

SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*; All freshmen data: Cooperative Institutional Research Program (CIRP), Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991.*

Age of entry into college. As reported in the Interim Report, SSS participants often were older than typical college entrants. Overall, 61 percent of SSS participants were 19 or younger when they entered, but among all persons entering college for the first time, 92 percent are typically 19 or under (table 5-1 and figure 5-1).

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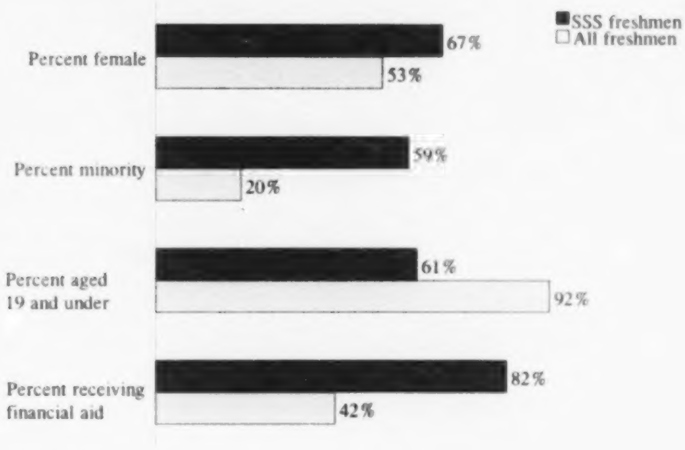
SSS participants also were more likely to have a delayed entry into college as can be seen from their date of high school graduation (table 5-2), and while 91 percent had a high school diploma, they were more than four times as likely than freshmen as a whole to enter college with a GED rather than a high school diploma (9 percent compared with 2 percent).

Figure 5-1
Summary demographic characteristics of SSS freshmen and all freshmen: 1991-92



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*

Table 5-2
Percent of SSS freshmen and of all freshman students graduating from high school and percent distribution of year of graduation: 1991-92

High school graduation factor	SSS freshmen				All freshmen (CIRP data)		
	All institutions	2-year institutions	4-year institutions	Doctoral institutions	All institutions	2-year institutions	4-year institutions
Percent having high school diploma	91%	78%	93%	97%	98%	96%	99%
Year graduated from high school							
1991	59	31	64	75	91	82	95
1990	8	8	8	9	3	5	2
1989	4	5	3	2	1	2	1
1988 or earlier	20	34	18	11	3	8	2
High school equivalency/GED	9	19	6	4	2	4	1
Left high school	1	3	*	*	*	1	*

*Less than 0.5 percent.

NOTE: Because of rounding, percents may not add to 100. CIRP data do not separate 4-year and doctoral institutions.

SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*; All freshmen data: Cooperative Institutional Research Program (CIRP), Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991*.

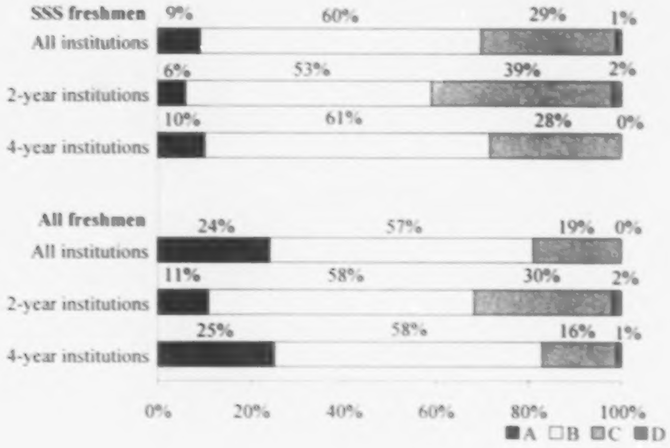
Sex, marriage, and dependent children. The SSS participants were also disproportionately women. In 1991-92, two-thirds (67 percent) of the participants were women (compared with 55 percent of freshmen at the same schools and 53 percent nationally) (table 5-1). Although SSS participants were slightly less likely to be married than all college freshmen and more likely than all freshmen to be separated or divorced/widowed (9 percent versus 2 percent), the SSS participants were equally likely to have dependent children (22 percent versus 24 percent).

Race/ethnicity. SSS participants were considerably more likely than all freshmen to belong to minority groups, with 41 percent white, 31 percent black, and 22 percent Hispanic (table 5-1). By contrast, 80 percent of all entering freshmen were white, 9 percent were black, and 6 percent were Hispanic.

Two-year participants. SSS participants at 2-year institutions were considerably more likely than those at 4-year institutions to have different characteristics than the overall freshman populations. At the 2-year schools, only 34 percent of the SSS freshman participants entered at age 19 or under (table 5-1). Among this group, the SSS students were more likely than students overall to be married or to have been married in the past. Twenty percent were currently married and 19 percent were separated, widowed, or divorced. Perhaps more significantly, 48 percent of the SSS participants who began at 2-year institutions reported caring for dependent children. At the 2-year schools, 45 percent of participants were black, compared with 10 percent of all 2-year college freshmen and 13 percent of the freshmen in the sampled schools (see appendix table E-1).

Academic need. SSS participants entered college with lower prior academic achievement than freshmen nationally or freshmen at the same institutions. They were more likely to report "C" averages or lower in high school (29 percent of SSS participants compared with 19 percent of all freshmen) (figure 5-2). They also reported lower SAT and ACT scores (table 5-3). Combining the results for both exams, SSS participants at the 4-year institutions showed a mean admission test percentile of 38, compared with 52 for all students at the same institutions. Overall, SSS participants averaged about 81 points lower on the SAT verbal and 89 points lower on the SAT math than other students at the same schools.

Figure 5-2
Percent distribution of self-reported high school grade point averages of SSS freshmen and all freshmen: 1991-92



NOTE: Because of rounding, percents may not add to 100.

SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92;* All freshmen data: Cooperative Institutional Research Program, (CIRP) Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991.*

Table 5-3
Mean standardized test scores for SSS and non-SSS freshmen and for all freshmen: 1991-92

Student population	SAT Verbal	SAT Math	ACT Composite	Mean admission test percentile[1]
SSS participants				
Total	352	405	19	37
2-year	331	388	15	26
4-year	352	405	19	38
Non-SSS participants at same school				
Total	433	494	22	52
2-year	384	432	18	36
4-year	433	494	23	52
All freshmen (national averages)	422	474	21	NA

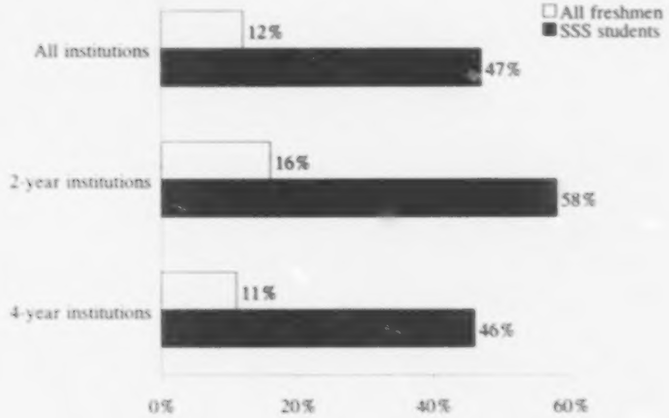
[1] Represents percentile scored data on SAT, ACT, or other available admissions tests.

NA - Not applicable.

SOURCE: SSS data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services, *Freshman File Data, 1991-92;* National SAT Scores: College Entrance Examination Board, *National Report on College-Bound Seniors*; National ACT Scores: ACT, *National Trend Data for Students Who Take the ACT Assessment.*

Economic disadvantage. SSS participants were considerably more economically disadvantaged than freshmen overall and relative to the formal SSS eligibility requirements of 150 percent of poverty. Almost half of the SSS participants (47 percent) reported family incomes of less than $15,000 a year, compared with 12 percent of all freshmen (figure 5-3 and table 5-4). These data suggest that SSS was drawing participants from groups where college attendance rates were likely to be low, and that SSS participants were likely to face considerable financial hardship while in school.

Figure 5-3
Percent of SSS freshmen and all freshmen with family incomes of $15,000 or less: 1991-92



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*.

Table 5-4
Percent distribution of estimated family household income of SSS freshmen and all freshmen: 1991-92

Family income	SSS freshmen				All freshmen (CIRP data)		
	All institutions	2-year institutions	4-year institutions	Doctoral institutions	All institutions	2-year institutions	4-year institutions
Under $10,000	30%	44%	27%	22%	7%	9%	6%
$10,000-$14,999	17	14	19	11	5	7	5
$15,000-$19,999	14	12	15	11	5	7	5
$20,000-$24,999	10	9	11	9	7	8	7
$25,000-$29,999	9	9	8	13	7	9	7
$30,000-$39,999	8	6	8	8	14	16	14
$40,000-$49,999	6	3	6	9	14	15	14
$50,000-$74,000	4	2	3	7	23	20	24
Over $75,000	3	1	2	9	18	10	18

NOTE: Because of rounding, percents may not add to 100. CIRP data do not separate 4-year and doctoral institutions.

SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*; All freshmen data: Cooperative Institutional Research Program (CIRP), Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991*.

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Educational disadvantage. Parents of SSS participants had considerably less formal education than parents of typical college entrants (table 5-5). As shown, not only were SSS students often the first generation to attend college, but a third (35 percent) of the fathers of the SSS participants had not completed high school. In many cases, the SSS participants were not only in the first generation in their families to go to college, but also in the first generation to complete high school.

Table 5-5
Percent distribution of educational level of parents of SSS freshmen and of all freshmen: 1991-92

Parents' educational level	SSS freshmen				All freshmen (CIRP data)		
	All institutions	2-year institutions	4-year institutions	Doctoral institutions	All institutions	2-year institutions	4-year institutions
Father's education							
Less than high school graduate	35%	44%	36%	16%	12%	18%	10%
High school graduate	35	31	36	36	28	37	26
Vocational, trade, or business school	9	7	9	11	5	5	6
Some college	11	9	12	10	16	16	16
College degree	6	5	5	15	22	16	22
Graduate degree	4	3	3	11	19	6	21
Mother's education							
Less than high school graduate	30	38	32	11	9	13	8
High school graduate	37	34	38	35	34	42	32
Vocational, trade, or business school	10	7	11	13	8	7	8
Some college	14	13	13	19	18	17	19
College degree	6	6	4	13	19	14	20
Graduate degree	3	2	2	8	13	7	14

NOTE: Because of rounding, percents may not add to 100. CIRP data do not separate 4-year and doctoral institutions.

SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey: 1991-92*; All freshmen data: Cooperative Institutional Research Program (CIRP), Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991*.

Disabilities. SSS participants were three times as likely as other college freshmen to have a learning disability. Such handicapping conditions were especially common among students at doctoral schools, with 15 percent of SSS participants reporting a learning disability (table 5-6). Overall, about 17 percent of the SSS participants had some form of disability (figure 5-4).

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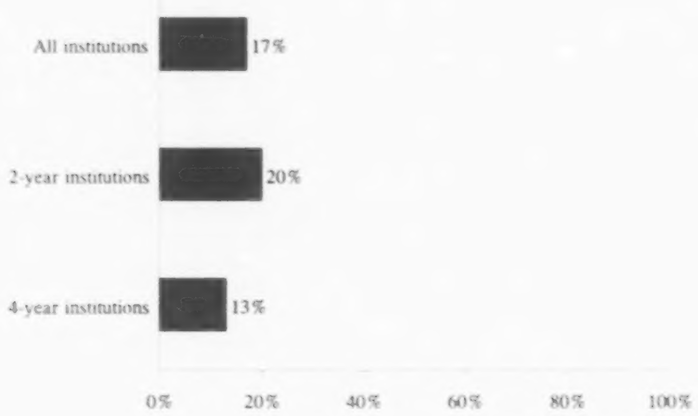
Table 5-6
Percent of SSS freshmen and of all freshmen with some handicapping conditions: 1991-92

Handicapping condition	SSS freshmen				All freshmen (CIRP data)		
	All institutions	2-year institutions	4-year institutions	Doctoral institutions	All institutions	2-year institutions	4-year institutions
Specific learning	6%	7%	4%	15%	2%	4%	2%
Visual handicap	2	3	1	3	2	2	3
Hearing problem	3	3	2	3	1	1	1
Speech disability	1	2	1	1	1	1	0
Orthopedic	3	2	3	3	1	2	1
Other health-related	5	8	4	7	3	3	3

NOTE: CIRP data do not separate 4-year and doctoral institutions.

SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*; All freshmen data: Cooperative Institutional Research Program (CIRP), Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991*

Figure 5-4
Percent of SSS freshmen with some type of disability: 1991-92



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services, *Baseline Survey, 1991-92*.

Summary. The SSS program targets its services to students with a background disadvantage as well as a specific academic need for services. Our initial profile of freshman SSS participants in the schools included in this study showed that the program was, indeed, serving a population at a considerable initial disadvantage in higher education.

In addition, SSS participants were more likely than most college students to have several related characteristics that have been identified as risk factors for college completion, including delayed enrollment, dependent children, single parenthood, receipt of a GED rather than a high school diploma, and financial independence.

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THREE YEARS LATER—COLLEGE PARTICIPATION IN THE THIRD YEAR

Despite indicators of considerable initial disadvantage, 77 percent of SSS participants were enrolled in the third year (not necessarily at the same institution).[1] Enrollment rates ranged from 61 percent among those who began at 2-year institutions to 83 percent among those who began at doctoral institutions (table 5-7).

Associate's Degree Attainment

By the end of 3 years, about 13 percent of those who began at 2-year institutions had earned an associate's degree, and about 5 percent of those who began at 4-year or doctoral schools reported they had associate's degrees (a few of the 4-year colleges in our sample awarded associate's degrees) (table 5-7). It appears that most of those who attained associate's degrees were also enrolled in the third year. The rates for either having an associate's degree or being enrolled in year three were only slightly higher than the overall rate of enrollment. For exampie, among those who began at 2-year institutions, 61 percent were enrolled in the third year. If we include those who either were enrolled or who had an associate's degree, the rate only increases to 63 percent.

Table 5-7
Percent of SSS participants enrolled in the third year and percent that earned associate's degrees, by freshman-year institution: 1993-94

Freshman-year institution	Third-year enrollment rate	Have associate's degree	Have associate's degree or enrolled
All participants	77%	7%	78%
Began at 2-year institution	61	13	63
Began at 4-year institution	80	5	81
Began at doctoral institution	83	5	84

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Comparison with BPS. To provide a context for the discussion of third-year retention, we include retention rates from the Beginning Postsecondary Study (BPS), third-year followup (see table 2-6). BPS is a longitudinal study with a nationally representative sample of undergraduates. For comparison with SSS participants, we ran a special tabulation that selected those BPS sample respondents who were enrolled full-time at a 4-year or community college and who or might be eligible for SSS, that is, those who were first-generation college and were low income ($20,000 or under family income), had some form of disability. Our SSS sample was intentionally made up largely of full-time students, although about 9 percent reported themselves as enrolled part time in their freshman year. Table 5-8 presents the enrollment rates among SSS participants who were full-time freshmen in 1991-92 compared with the group selected from the Beginning Postsecondary Survey (BPS) third-year followup to be as similar as possible to the SSS participants. One can see from this table that the SSS participants had somewhat higher retention rates. Among the BPS full-time "disadvantaged group" the rates were 76 percent for those beginning at 4-year institutions and 55 percent for those beginning at 2-year institutions. Among our SSS sample, the rates for those who began as full-time students were 83 percent for those who began at 4-year institutions and 62 percent for those who began at 2-year institutions (figure 5-5 and table 5-8). While some caution must be exercised in interpreting these results due to differences in the samples, they provide some context for the discussion of SSS outcome results presented in chapters 6 through 8.

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[1] To be considered enrolled, a student needed to take at least one course during the year. The 77 percent retention rate is for persons who answered the followup (1993-94) questionnaire. (This group is biased slightly in its representation of third-year college enrollees when compared with the full freshman SSS cohort.)

Table 5-8
Percent of full-time SSS participants and of full-time 1989-1990 Beginning Postsecondary Study (BPS) freshmen eligible for SSS who were enrolled in the third year

Student population	Percent enrolled in third year
SSS participants[1]	
Began full time at 2-year institution	62%
Began full time at 4-year institution	83
BPS respondents that were eligible for SSS[2]	
Began full time at 2-year institution	55
Began full time at 4-year institution	76

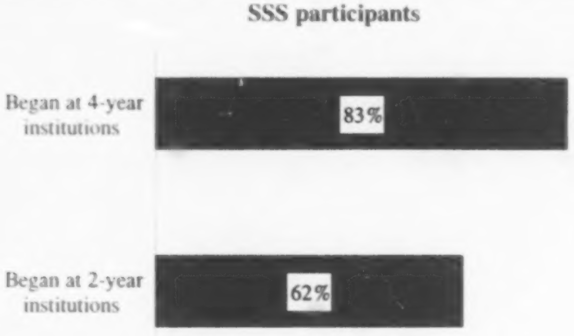
[1] The SSS study intentionally focused on full-time freshmen; however, about 9 percent of our sample self-reported being part time. These have been omitted from the tabulation, which selected only those BPS respondents who reported full-time enrollment in 1989-90.

[2] BPS respondents were included in the tabulation if they were full time and were first-generation college, had family income of $20,000 or less, or had some form of disability.

NOTE: While an effort has been made to select comparable groups, caution should be exercised in comparing the national BPS weighted sample with the SSS sample.

SOURCE: U.S. Department of Education, National Center for Education Statistics, unpublished tabulations, *Beginning Postsecondary Student Longitudinal Survey, 1992*, and U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

Figure 5-5
Percent of full-time SSS participants who were enrolled in the third year



SOURCE: SSS participant data: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94;* unpublished BPS participant data: National Center for Education Statistics, Beginning Postsecondary Student Longitudinal Survey, 1992.

Demographics and Enrollment

Sex. Although SSS participants were predominately women, their sex, per se, does not appear to make an important difference in retention to the third year. At the 3-year mark, the distribution of males and females among SSS participants was essentially the same as in the first year of college. At the start of their studies, two-thirds of the SSS sample were female (table 5-9). Three years later, two-thirds of both those enrolled and not enrolled in the third year were female. Third-year retention was 77 percent for both males and females. In this respect, the SSS participants depart somewhat from national enrollment trends, where slightly larger percentages of females than males are likely to remain in school. In other words, although SSS attracts considerably fewer males than females, the males who participate do not follow the national trend to leave school at slightly higher rates than females.

Table 5-9
Demographic characteristics of SSS participants, by third-year enrollment status: 1993-94

Demographic characteristic	Enrolled in third year	Not enrolled in third year
Female	67%	66%
Age 20 or older as of Jan. 1992	30	51
Minority	59	53

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Dependent children and marital status. SSS participants enrolled in the third year were less likely to have dependent children than were those not enrolled. Among SSS participants who were in school in the third year, 21 percent indicated that they had dependent children, up slightly from 18 percent in their first year of college (table 5-10). Among those who were not in school in the third year, however, 41 percent indicated that they had dependent children, up from 30 percent when this group entered college. Similar changes occurred for this group regarding marital status. Among those still enrolled, marriage rates remained stable (16 percent at entrance, 15 percent in third year), but among those no longer enrolled, marriage rates went from 10 percent to 29 percent over the 3-year period. Thus, it may be that a change in martial status or family status is more important than the original status itself.

Table 5-10
Percent of SSS participants who were married and who had dependent children, by third-year enrollment status: 1993-94

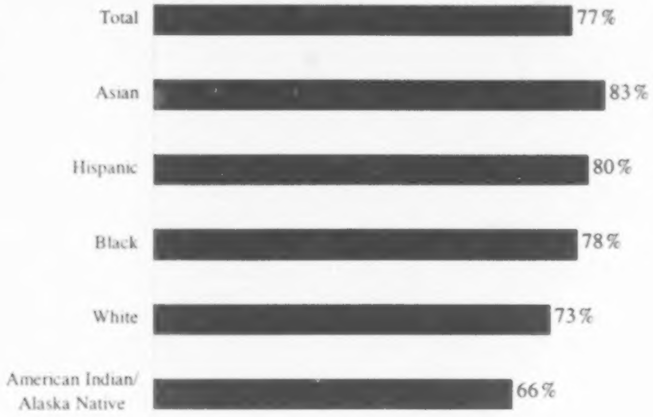
Marital/parental status	SSS participants	
	Enrolled in third year	Not enrolled in third year
In third year (1993-94)		
Married	15%	29%
Dependent children	21	41
At entrance (1991-92)		
Married	16	10
Dependent children	18	30

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94;* and *Baseline Survey, 1991-92.*

Age. Consistent with the fact that those not enrolled in the third year were more likely to be married and have dependent children, those not enrolled were also more likely to be the older SSS participants who had delayed enrollment (table 5-9). Fifty-one percent of those who were not enrolled in the third year were aged 20 and older when they were freshmen, compared with 30 percent of those who were enrolled.

Race/ethnicity. Third-year SSS participant enrollments ranged from 66 percent for American Indian/Alaska Natives to 83 percent for Asians (figure 5-6). Whites had enrollment rates of 73 percent and blacks and Hispanics had rates of 78 and 80 percent, respectively.

Figure 5-6
Percent of SSS participants reporting they had enrolled in the third year, by race/ethnicity: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Progress through college/length of time to complete degree. Although they show relatively high overall retention rates when compared with national rates, a sizable number of the freshman SSS participants will probably need longer than 4 years to complete degrees. Combining those students enrolled and not enrolled in the third year, about half of the SSS freshman cohort reported that they were freshmen or sophomores in the third year (table 5-11 and figure 5-7). Overall, 25 percent of the SSS participants indicated that they were freshmen and 26 percent reported being sophomores.[2] Even among the students enrolled in the third year, 35 percent indicated they were freshmen or sophomores (table 5-11).

Table 5-11
Self-reported level in college of SSS participants at last college enrollment, by third-year enrollment status: 1993-94

Class	All students	Enrolled in third year	Not enrolled in third year
Freshman	25%	10%	64%
Sophomore	26	25	28
Junior or above	50	65	7

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

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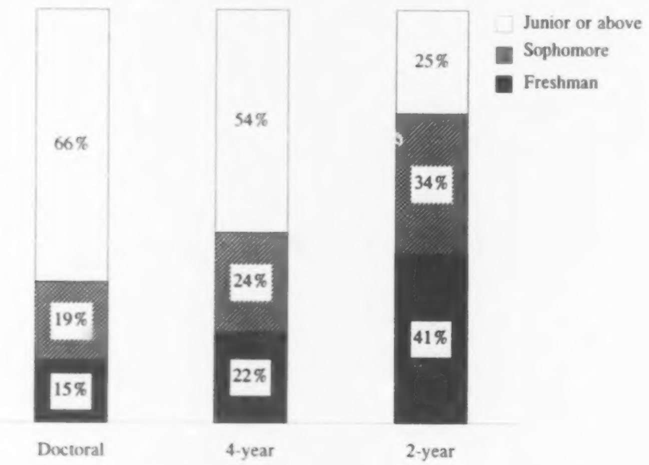
[2] Either now or when last enrolled.

Figure 5-7
Self-reported level in college after 3 years for SSS participants, by institution level: 1993-94



NOTE: Percents include students not enrolled in third year.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

Attendance at other schools. Overall (combining those students in school and not in school at the time of the followup survey), 30 percent of SSS participants reported they had attended at least one additional school since the one they had attended as freshmen in 1991-92 (table 5-12).[3] This included students who transferred to another institution as well as those who may have attended another institution for summer classes and so forth. Of those enrolled in the third year, 34 percent indicated that they had attended at least one school in addition to the one in which they began. Interestingly, those who began their education in 2-year institutions were the least likely to have attended multiple schools. Just over one-fourth (27 percent) of those who began at 2-year institutions had attended another school since their freshman year, while 35 percent of those who began in institutions that grant doctorates had attended other schools.[4] Students who were enrolled in the third year were more likely to have attended more than one institution (34 percent) than those not currently enrolled (20 percent).

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[3] Or, because some participants had prior higher education and some changed schools during that year, the school in which they began their 1991-92 school year.

[4] Our transcript data collection reinforces the mobility pattern. Starting out at 50 institutions, the sample students had attended about 800 different institutions by the end of the third year.

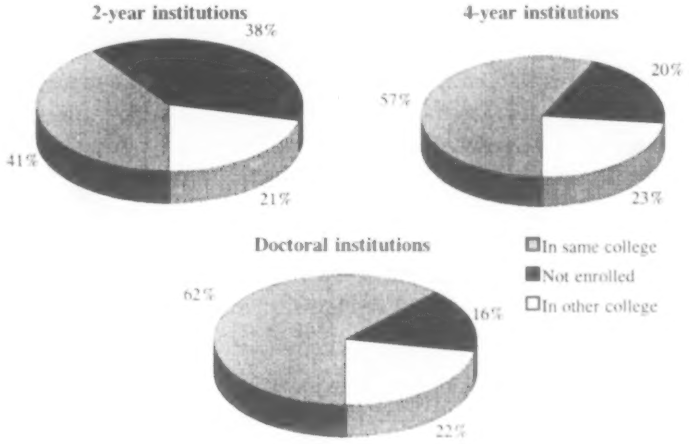
Table 5-12
Percent of SSS participants who attended more than one institution, by third-year enrollment status and freshman-year institution: 1993-94

Freshman-year institution	Percent attending more than one institution		
	All freshman participants	Enrolled in third year	Not enrolled in third year
All participants	30%	34%	20%
Began at 2-year institution	27	32	19
Began at 4-year institution	31	33	22
Began at doctoral institution	35	37	27

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

A sizable number of those students who were enrolled in the third year were not enrolled in the institution in which they began (figure 5-8). Twenty-one percent of the students at 2-year schools, 23 percent of those at 4-year schools, and 22 percent of the students at doctoral schools were enrolled in some other institution than the one in which they began 3 years earlier.

Figure 5-8
Percent distribution of enrollment status of SSS participants in the third year, by institution level: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Over the course of their studies, a number of SSS participants shifted from full-time to part-time status (table 5-13). Among those enrolled in 1993-94, about 15 percent self-reported that they were part-time students. In 1991-92 among the same group, only 7 percent had reported that they were part-time students. It should also be noted that those who began as part-time students were twice as likely not to be enrolled in the third year. While 16 percent of those not enrolled began as part-time students, only 7 percent of the enrolled students began as part-time students.

Table 5-13
Percent of SSS participants who reported part-time enrollment for freshman year and third year, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Freshman-year institution	Enrolled in third year		Not enrolled in third year
	Freshman year	Third year	Freshman year
All participants	7%	15%	16%
Began at 2-year institution	11	25	11
Began at 4-year institution	8	15	21
Began at doctoral institution	1	8	6

NOTE: Among the total SSS participants, overall 9 percent reported part-time enrollment in 1991-92. We intentionally sampled full-time students.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94;* and *Baseline Survey, 1991-92.*

COURSE TAKING AND CREDITS OF SSS PARTICIPANTS

This section summarizes the course-taking patterns of SSS participants as derived from college transcripts collected in 1991-92 and again in 1993-94. Unless otherwise labeled, the data discussed in this section are for SSS freshman-year participants who were enrolled for 3 years. They include credits earned at all institutions attended over the period.

By the end of the third year, SSS participants who remained enrolled had taken a average 29.9 courses for regular credit, 0.2 courses for institutional credit, and 0.9 courses for no credit (table 5-14).[5] In general, students enrolled at 4-year colleges and doctoral institutions took the greatest number of courses for regular credit (30.7 and 32.2, respectively). Students who began at 2-year schools and were still enrolled at any school 3 years later took an average of 23.7 courses.

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[5] Institutions vary in how courses are classified and which courses are listed on a college transcript. It is possible that students have taken more courses for other than regular credit (i.e., institutional or no credit) than the numbers reflect here because such courses do not always appear on transcripts. Also, the number of courses varies depending on whether instruction in the institution is offered over semesters or quarters. In these data, institutions on the quarter system may yield more separate courses.

Table 5-14
Mean number of courses taken by SSS participants, by type of credit earned and freshman-year institution: Cumulative through 1993-94

Freshman-year institution	Regular credit	Institutional credit	No credit
All participants	29.9	0.2	0.9
Began at 2-year institution	23.7	0.1	0.9
Began at 4-year institution	30.7	0.4	1.0
Began at doctoral institution	32.2	0.1	0.6

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94*, table 5-23.

As might be expected, most courses taken were lower level courses (a mean of 24.6 courses compared to 4.8 upper level courses) (table 5-15), the typical student had taken 1 remedial or developmental course, usually in the freshman year. Students enrolled at 2-year colleges took an average of 1.9 remedial courses, while those at 4-year and doctoral institutions took fewer remedial courses (averaging 0.9 and 0.5, respectively) and more lower level courses (25.1 and 25.4, respectively).

Table 5-15
Mean number of courses taken by SSS participants, by course level and freshman-year institution: Cumulative through 1993-94

Freshman-year institution	Remedial/ developmental	Introductory	Lower level	Upper level
All participants	1.0	0.3	24.6	4.8
Began at 2-year institution	1.9	0.1	22.1	0.9
Began at 4-year institution	0.9	0.4	25.1	5.3
Began at doctoral institution	0.5	0.1	25.4	6.3

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.
SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94*

The most common courses taken by SSS participants were in the social sciences and English (table 5-16). Students took a mean of 5.5 social science courses, 3.9 English courses, 3.2 math courses, 2.4 physical science courses, and 2.0 life science courses. Students at doctoral institutions took the most courses in these five subject areas, while those at 2-year colleges took the fewest.

Table 5-16
Mean number of courses taken in selected subject areas by SSS participants, by freshman-year institution: Cumulative through 1993-94

Freshman-year institution	Life sciences	Physical sciences	Math/ calculus	English	Social sciences
All participants	2.0	2.4	3.2	3.9	5.5
Began at 2-year institution	1.4	1.0	2.9	3.6	3.5
Began at 4-year institution	2.2	2.2	2.9	4.3	5.6
Began at doctoral institution	2.0	3.5	3.7	3.3	6.3

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94.*

Overall, SSS participants who remained enrolled earned a mean of 79.2 credits by the end of the third year (table 5-17). Students beginning at 2-year institutions had earned an average of 68.9 credits, while students at 4-year institutions had earned 76.8 credits, and students at doctoral schools, 89.5 credits.[6] One reason for the difference is that many 2-year college students appear to have been enrolled part time for at least a portion of the 3-year period.

Table 5-17
Mean number of total credits earned by SSS participants enrolled for 3 years, by freshman-year institution: Cumulative through 1993-94

Freshman-year institution	Number of credits
All participants	79.2
Began at 2-year institution	68.9
Began at 4-year institution	76.8
Began at doctoral institution	89.5

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94.*

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[6] Credits earned in the quarter-based system were multiplied by 2/3 to adjust for differences with credits earned in a semester-based system. Credits earned in 2-year schools may also show a ceiling effect because 2-year degrees require around 60 credits.

Similar to the number of courses, the great majority of credits were earned in lower level courses (61.2 of the 79.2) (table 5-18). In addition, students earned a mean of 1.6 remedial/developmental credits and 13 upper level credits. Students at 4-year colleges and doctoral institutions earned fewer remedial/developmental credits and more lower level credits than students in 2-year schools. Mean number of credits in selected subject areas are presented in table 5-19.

Table 5-18
Mean number of credits earned by SSS participants, by course level and freshman-year institution: Cumulative through 1993-94

Freshman-year institution	Remedial/ developmental	Introductory	Lower level	Upper level
All participants	1.6	0.6	61.2	13.0
Began at 2-year institution	4.4	0.2	59.6	3.0
Began at 4-year institution	1.2	1.0	58.4	13.8
Began at doctoral institution	0.7	0.2	67.0	17.5

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94*.

Table 5-19
Mean number of credits earned by SSS participants, by selected subject area and freshman-year institution: Cumulative through 1993-94

Freshman-year institution	Life sciences	Physical sciences	Math/ calculus	English	Social sciences
All participants	4.8	5.5	7.6	10.2	14.9
Began at 2-year institution	3.6	2.9	7.2	10.1	9.7
Began at 4-year institution	5.0	4.8	6.9	10.7	14.5
Began at doctoral institution	5.2	8.3	9.2	9.3	18.8

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study*, 1993-94.

It should be noted that these summaries in tables 5-14 to 5-20 are for those who enrolled in the third year and include all credits earned at any institution. They, therefore, represent the most advanced subset of participants with respect to credits earned. Overall, these SSS participants earned a mean GPA of 2.6, with no significant differences in GPA by type of institution attended (table 5-20).[7] Grades in upper level courses on average were somewhat higher than those in lower level courses.

Table 5-20
Mean cumulative GPA of SSS participants (3-year average), by course level and freshman-year institution: 1991-92 to 1993-94

Freshman-year institution	Overall GPA	Remedial/ developmental	Introductory	Lower level	Upper level
All participants	2.6	2.5	2.3	2.5	2.7
Began at 2-year institution	2.6	2.5	2.4	2.6	2.7
Began at 4-year institution	2.6	2.7	2.3	2.5	2.8
Began at doctoral institution	2.6	2.4	2.9	2.6	2.7

NOTE: Includes only those enrolled for 3 years and includes credits earned at any institution.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94.*

GPA CHANGES OVER TIME AND DIFFERENCES BY THIRD-YEAR ENROLLMENT STATUS

Table 5-21 and figure 5-9 summarize differences over time in mean GPA by third-year 1993-94 enrollment status. SSS participants are grouped according to whether they (1) were enrolled in the same school in 1993-94 as in 1991-92, (2) had transferred and were enrolled in a different school in 1993-94, or (3) were not enrolled in 1993-94. Among those who remained in the same school over the 3 years, we see that there was little change in GPA over the period and that a very small decline in the mean GPA had occurred (table 5-21). The mean was 2.58 in the first year and 2.54 in the third year (1993-94).

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[7] Institutions use varying grading scales. To standardize the grades, GPA was recomputed using a four-point scale with pluses and minuses used to adjust letter grades (e.g., an A- would be treated as a 3.7). The resulting numeric score was multiplied by the number of credits attempted to compute the average across multiple courses. Also, only courses taken for regular credit were included in the calculation of GPA.

Table 5-21

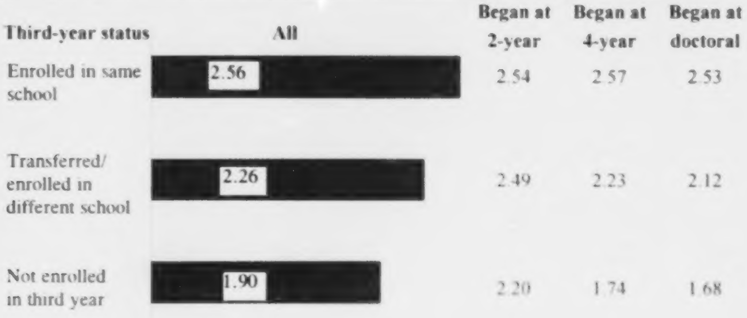
Mean yearly GPAs of SSS participants using transcript data from all colleges they attended, by third-year enrollment status and freshman-year institution: 1993-94

Freshman-year institution	Third-year enrollment status							
	Enrolled in same school			Transferred/enrolled in different school			Not enrolled in third year	
	GPA in 1991-92	GPA in 1992-93	GPA in 1993-94	GPA in 1991-92	GPA in 1992-93	GPA in 1993-94	GPA in 1991-92	GPA in 1992-93
All participants	2.58	2.54	2.54	2.29	2.24	2.66	1.98	1.68
Began at 2-year institution	2.64	2.51	2.58	2.60	2.46	2.59	2.30	1.76
Began at 4-year institution	2.57	2.58	2.54	2.24	2.18	2.75	1.81	1.63
Began at doctoral institution	2.56	2.45	2.53	2.13	2.10	2.51	1.78	1.63

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94*.

Figure 5-9

Mean cumulative GPAs of SSS participants using transcript data from all colleges they attended, by third-year enrollment status and freshman-year institution: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Transcript Study, 1993-94*.

Among those who transferred and were enrolled in a different college in 1993-94, some increase occurred in the GPA by the third year. Overall the average for those who transferred went from 2.29 in the first year (1991-92) to 2.66 in the third year (1993-94). Among those who were not enrolled in 1993-94, we find that the opposite pattern occurred, with average grades declining between 1991-92 and the second year (1992-93). Among those not enrolled in the third year the mean GPA was 1.98 in the first year and 1.68 in the second year.

Differences in Grades by Enrollment Status

In earlier parts of this chapter, we noted that those who were not enrolled in the third year had more external commitments, such as dependent children, and expressed less commitment to college. It is also clear from their average GPAs that while students may not often identify grades as the one main factor in leaving school (see table 5-31), there was a substantial difference in the GPAs between those who remained enrolled and those who did not. The mean cumulative GPA was 1.9 for those not enrolled in year three, compared with 2.6 for those enrolled in the same school and 2.3 for those who transferred (figure 5-9). We see that those who transferred had grades between those who remained at the same school and those who did not enroll in year three. Transfer activity may reflect a desire to improve one's academic situation and to have a fresh start at another institution.

Among those who began at 2-year institutions and transferred, GPAs prior to transferring were much higher than among those who began at 4-year and doctoral schools and who also transferred. This would be expected since those transferring from 2-year institutions would presumably be going on to 4-year schools. Similarly, among those not enrolled, the grades of those who began at doctoral schools were the lowest, indicating that this group may more frequently be those who were unable to obtain the average required for continuation and hence transferred to be able to stay in college.

THE SCHOOL LIFE OF SSS PARTICIPANTS

Major Field of Study

Among enrolled SSS participants, the most popular fields included business (19 percent), health (18 percent), and education (14 percent). While about 20 percent were majoring in the social sciences, only a small minority of students were pursuing the sciences, including 5 percent in biological sciences, 4 percent in engineering, and 2 percent in the physical sciences (table 5-22). Only 1 percent of the enrolled students remained undecided about their major, a drop from about 7 percent in the freshman year. Enrolled third-year SSS students who began in 1991-92 in 2-year institutions were focusing heavily on health-related fields, with 32 percent selecting a health-related major.

Table 5-22
Percent distribution of SSS participants, by third-year enrollment status and major field of study in freshman and third years: 1991-92 and 1993-94

Major field	Freshman year	Enrolled in third year		Not enrolled in third year
		All enrolled in third year	Began at 2-year institution	
Agriculture	1%	1%	1%	0%
Arts	4	4	2	4
Biological sciences	5	5	2	3
Business	16	19	14	16
Computer science	4	3	6	6
Education	11	14	11	11
Engineering	5	4	5	5
Health-related	19	18	32	21
Humanities	3	8	4	4
Physical science	2	2	1	2
Social science[1]	11	20	19	16
Other[1]	12	1	1	4
Undecided	7	1	2	8

[1] Some of those majors in the "other" category in the freshman year were coded into the "social science" category in 1993-94.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* ,and *Third Year Followup Survey, 1994*.

As might be expected, among those SSS participants not enrolled in the third year, more people remain undecided on a major field than among those enrolled. Eight percent of the nonenrolled remained undecided about major, about the same rate as was the case for all participants as freshmen, and much less than among the third-year enrolled (1 percent).

Time Spent on School Work

Of those students enrolled in the third year, 67 percent reported that they spent 1 to 3 hours each day studying outside of class, and 29 percent indicated that they spent 4 hours or more (table 5-23). These figures were similar to the amounts of study time reported in the freshman year, when 25 percent reported that they spent 4 or more hours per day studying.

Table 5-23
Time spent outside of class per day on school work by SSS participants in freshman and third years, by third-year enrollment status: 1991-92 and 1993-94

Time spent	Enrolled in third year		Not enrolled in third year
	Freshman year	Third year	Freshman year
Less than 1 hour	3%	4%	7%
1-3 hours	71	67	73
4 or more hours	25	29	20

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994*

Among those not enrolled, the time reported in the freshman year for studying was somewhat less than among those who remained enrolled, with 7 percent of the not enrolled reporting less than 1 hour per day compared with only 3 percent of the enrolled group. This finding is consistent with retention research that has shown that time spent on college-related activities is critical to academic success, and that efforts/activities that increase this time commitment will have a positive impact on student retention (Astin, 1993).

Integration into College Life

Several major studies have positively linked integration into college life in general and college retention (see chapter 3). It is widely held that those students who come to feel part of an institution are more likely to continue to attend and to graduate. To explore this notion, we asked SSS participants how frequently they engaged in a number of formal and informal college-related activities during the last term in which they were enrolled.

In general, SSS participants were more likely to report contacts with faculty, advisors, and friends from school than to report that they took advantage of school-related or sponsored leisure time activities. Of the group enrolled in the third year, over two-thirds (76 percent) reported that they (sometimes or often) talked with faculty in their offices about academic matters, and 65 percent reported that they met (sometimes or often) with their advisor concerning their academic plans (table 5-24). They also reported that they participated in study groups outside of class (65 percent) and went to concerts, movies, etc., with friends from school (67 percent). Far fewer enrollees reported that they participated in school clubs, including school government (37 percent), or intramural or intercollegiate sports, music, drama, choir, etc. (31 percent). Students who began at 4-year colleges were more likely to engage in all activities than those who began at 2-year colleges, but rates of contact with faculty and advisors remained relatively high among all third-year enrollees.

The SSS participants who were not enrolled in the third year reported consistently lower rates of contact (they answered for the last period in which they were enrolled) with institutional officials and friends from school when they did attend. For example, 76 percent of third-year enrollees reported they sometimes or often talked to faculty, compared with 61 percent of the nonenrolled. Sixty-seven percent of the enrollees reported that they often went places with friends from school, compared with 52 percent of the nonenrolled. On a specific question about organized field trips to off-campus events, 41 percent of enrolled third-year SSS participants but only 18 percent of those not enrolled in the third year reported that they had attended such events (see table 5-49).

Table 5-24
Percent of SSS participants reporting various formal and informal contacts with institution last attended, by third-year enrollment status: 1993-94

Sometimes or often...[1]	Enrolled in third year		Not enrolled in third year
	Total	Began at 2-year institution	
Talk with faculty in their offices about academic matters	76%	67%	61%
Meet with your advisor concerning your academic plans	65	57	54
Have informal or social contacts with your advisor or other faculty members about classes	63	60	50
Participate in study groups with other students outside of the classroom	65	58	50
Go places such as concerts, movies, restaurants, sporting events, etc., with friends from school	67	46	52
Participate in one or more student assistance centers or programs	41	38	35
Participate in clubs	37	24	20
Attend career-related lectures, conventions, or field trips with friends	42	33	27
Participate in and practice with others for intramural or intercollegiate sports, music, drama, choir, etc	31	21	21
Cut classes in which you were enrolled	41	27	39

[1] Categories "sometimes" and "often" combined.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

College Living Arrangements

In the third year, 65 percent of the enrolled SSS students attended a college within 50 miles of their permanent home (table 5-25). Those who began at 2-year institutions were most likely to be close to home, with 82 percent of these students attending college within 50 miles of their home. Among those who began at doctoral schools the comparable percentage was 43 percent. There appears to have been a slight shift toward attending school closer to home over the 3 years among those who began at doctoral or 4-year institutions. For example, among those beginning at doctoral institutions, 32 percent were within 50 miles of home as freshmen compared to 43 percent in the third year.

Table 5-25
Percent of SSS participants attending school within 50 miles of home in freshman and third years, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Third-year enrollment status and freshman-year institution	Percent reporting college within 50 miles of permanent home	
	Freshman year	Third year
Enrolled in third year		
All enrolled	59%	65%
Began at 2-year institution	87	82
Began at 4-year institution	59	66
Began at doctoral institution	32	43
Not enrolled in third year		
All enrolled	77	NA
Began at 2-year institution	92	NA
Began at 4-year institution	72	NA
Began at doctoral institution	54	NA

NA - Not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994*.

Living on campus or within walking distance. Most SSS participants did not live on campus or within walking distance of campus in their third year, and they made some shifts in where they lived between the first and third years (table 5-26). When they entered college, 44 percent of those still enrolled in the third year lived on or within walking distance of campus, most commonly in dorms or apartments. By the third year, only 30 percent reported living within walking distance to campus. Much of the change in living arrangements occurred among students who began their college studies in institutions granting doctorates. Their rates of living on or within walking distance of campus declined from 82 percent to 53 percent.

Table 5-26
Percent of SSS participants residing within walking distance to college in freshman and third years, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Third-year enrollment status and freshman- year institution	Percent reporting residence within walking distance of college[1]	
	Freshman year	Third year
Enrolled in third year		
All enrolled	44%	30%
Began at 2-year institution	7	10
Began at 4-year institution	43	28
Began at doctoral institution	82	53
Not enrolled in third year		
All enrolled	23	NA
Began at 2-year institution	4	NA
Began at 4-year institution	27	NA
Began at doctoral institution	59	NA

[1] Dorm, fraternity, and nearby apartment combined.

NA - Not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994*.

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Although this change in living arrangements may be common for students as they progress through college, living on or within walking distance of campus in the freshman year is associated with enrollment 3 years later. Forty-four percent of those still enrolled 3 years later compared with only 23 percent of those not enrolled lived on or near campus in their first year of college. This relationship between freshman-year living arrangements and third-year enrollment was especially strong for students who began their studies in 4-year institutions.

Financing College

SSS participants received financial aid at high rates in both the freshman and the third years. In the baseline survey, we found that about 82 percent of the SSS students had financial aid compared with about 45 percent of students nationwide (see appendix table E-2). By the third year about the same proportion of those enrolled reported use of financial aid sources as in the freshman year; however, use of personal job-related funds earned at work and nongovernmental loans had become more frequent by the third year.

For those enrolled in the third year, the most common financial aid sources in that year were grants or scholarships (58 percent) and jobs held during the school year (58 percent), followed by summer jobs (52 percent), parents or other relatives or friends (50 percent), and loans from sources other than the government (48 percent) (table 5-27). About a third of the students (34 percent) reported personal savings as a resource. Fewer students who began at 2-year colleges than at 4-year and doctoral institutions relied on any type of support other than grants and school-year jobs. For SSS students who began at 2-year colleges, 56 percent used grants or scholarships, and 51 percent relied on a job during the school year.

The major shift between 1991-92 and 1993-94 was in the direction of more self-reliance (i.e., jobs and loans). When they began their education, only 37 percent reported that a job held during the school year was a source of support. By the third year, 58 percent reported holding a job during school. Similarly, summer jobs became important. Another more frequent source was other nongovernmental loans. While in the freshman year only 15 percent reported nongovernmental loans, by the third year 48 percent reported that they were using such loans.

Table 5-27
Percent of SSS participants using various sources of financial support in freshman and third years, by third-year enrollment status: 1991-92 and 1993-94

Source	Freshman year	All enrolled in third year	Third-year enrolled who began at 2-year schools
Enrolled in third year			
Parents/relatives	55%	50%	33%
Spouse	6	8	10
Personal savings	36	34	24
Job during school	37	58	51
Summer job	37	52	35
Grants/scholarship	50	58	56
Government loans	30	31	30
Other loans	15	48	28
Not enrolled in third year			
Parents/relatives	40	NA	NA
Spouse	8	NA	NA
Personal savings	28	NA	NA
Job during school	39	NA	NA
Summer job	28	NA	NA
Grants/scholarship	49	NA	NA
Government loans	26	NA	NA
Other loans	16	NA	NA

NA - Not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994.*

We did not find that receiving financial aid, per se, was significantly related to whether the SSS participant was enrolled 3 years later, perhaps because over 80 percent of the SSS participants had financial aid.

Parental and relative assistance. Among the sources of financial support, having parental assistance was most associated with third-year enrollment. About half of SSS freshman participants reported that parental assistance was a source of financial support, but the amounts were limited with only about 30 percent reporting assistance of $600 or more. Of those enrolled in the third year, about 55 percent reported in their freshman year that parents and relatives were a source of support compared with 40 percent of those not enrolled.

Between the first and third years of college there was little change in the rate at which *enrolled* SSS participants reported receiving a parental contribution of $600 or more. At both points in time, 30 percent of those SSS participants who were enrolled in the third year reported receiving parental assistance (table 5-28). This figure was considerably lower for those who began their studies in 2-year institutions (14 percent in freshman year, 16 percent in the third year) and higher for those who began at doctoral institutions (43 percent in freshman year, 44 percent in the third year). Among

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those not enrolled in the third year, only 21 percent reported that they received assistance of $600 or greater in their freshman year, a considerably lower average rate of parental assistance.

Table 5-28
Percent of SSS participants receiving parental assistance of $600 or more for freshman and third years, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Freshman-year institution	Percent with parental support	
	Freshman year	Third year
Enrolled in third year		
All students	30%	30%
Began at 2-year institution	14	16
Began at 4-year institution	31	29
Began at doctoral institution	43	44
Not enrolled in third year		
All students	21	NA
Began at 2-year institution	16	NA
Began at 4-year institution	24	NA
Began at doctoral institution	20	NA

NA - Not applicable

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994*

Living with parents. Not surprisingly, the percentage of SSS participants residing with their parents declined between the first and third years of college. When they began their studies, 58 percent of all participants lived with their parents for more than 5 consecutive weeks in the year (table 5-29). Sixty-one percent of the SSS participants who enrolled in the third year indicated that they lived with their parents at least part of the time during their first year of college. By the third year, however, only 48 percent of enrolled students reported that they lived with their parents.[8] The greatest change occurred among those students who began their studies at institutions granting doctorates. In their first year, 60 percent of these students reported living with parents at least part of the time. By the third year, only 36 percent of this group did so.

Table 5-29
Percent of SSS participants living with parents more than 5 weeks a year in freshman and third years, by freshman-year institution: 1991-92 and 1993-94

Freshman-year institution	Freshman year	Third year
All participants	58%	NA
All third-year enrolled	61	48
Began at 2-year institution	47	40
Began at 4-year institution	65	54
Began at doctoral institution	60	36

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994*

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[8] The precise wording is "living with your parents for more than five consecutive weeks."

Dependency status. The change in residence just discussed is not reflected in changes in dependency status. Overall, 45 percent of those students enrolled in college in 1993-94 indicated that they were listed as a dependent on their parents' federal income tax return (table 5-30), about the same as the 47 percent of third-year enrollees that reported they were dependents when they began college.[9] There were wide variations among the participants, however. Only 25 percent of those who began at 2-year colleges reported that they were dependents in the third year, while 57 percent of students who began at doctoral institutions reported themselves as dependents. First-year dependency status is associated with third-year enrollment: 33 percent of the SSS participants not enrolled in the third year reported that they were dependents of their parents in their first year of college (compared with 47 percent of those enrolled in the third year).

Table 5-30
Percent of SSS participants listed as dependents during freshman and third years, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Freshman-year institution	Percent listed as dependents	
	Freshman year	Third year
Enrolled in third year		
All students	47%	45%
Began at 2-year institution	24	25
Began at 4-year institution	50	47
Began at doctoral institution	57	57
Not enrolled in third year		
All students	33	NA
Began at 2-year institution	23	NA
Began at 4-year institution	35	NA
Began at doctoral institution	52	NA

NA - Not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994.*

THE CONCERNS AND ATTITUDES OF SSS PARTICIPANTS

In addition to questions about their participation in college, we also asked SSS students to reflect on their college experiences and their personal development. We found that SSS participants were quite concerned about their ability to finance their education. Money aside, however, those who remained in school showed confidence about their personal development and their academic ability to complete their education. Although their rates were somewhat lower than among those enrolled, most of those not enrolled in the third year also planned to eventually complete school.

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[9] The overall rate for all participants in the freshman year was 43 percent.

Reasons for Leaving College

SSS participants who were enrolled at the time of the survey were asked about reasons that might lead them to consider leaving college or enrolling part time. Those who were not enrolled at the time of the survey were asked to indicate why they had left. Both groups were asked to indicate whether each item on the list was "a reason" they left or might leave and to choose the "main reason." Responses are summarized in table 5-31. Among both those enrolled and those not enrolled, *not enough money* was the most frequently selected reason, with a majority indicating it was a reason and over a third indicating it was the main reason. Among those who were not enrolled, uncertain career goals and poor grades were the next most frequently selected reasons, followed by taking a job and childcare. Among those who were enrolled for whom the question was somewhat hypothetical, the next most frequently selected reason why they might leave college was *poor health*, selected by almost a third of those enrolled. About 30 percent of those enrolled indicated they would never consider leaving or going part time.

Table 5-31
Reasons cited by SSS participants for either not enrolling in the third year, or, for those who were enrolled, for attending part time or possibly leaving in the future: 1993-94

Reason to leave	Not enrolled in third year		Enrolled in third year	
	Reason for not enrolling		Reason might consider leaving school or reason attending part time	
	A reason	The main reason	A reason	The main reason
Not enough money	56%	36%	55%	34%
Uncertain career goal	29	9	15	4
Poor grades	22	4	21	4
Take job	21	7	19	6
Pregnancy, childcare	19	8	16	7
Courses not relevant to work	14	2	12	2
Marriage	12	5	6	1
Poor health	12	7	32	14
Courses too difficult	10	2	7	1
Expelled/suspended	4	1	18	4
Military	3	1	1	*
Parents want me to quit	1	*	2	*
Other	19	16	11	9
Would not consider leaving	NA	NA	30	14

*Less than 0.5 percent.

NA - Not applicable.

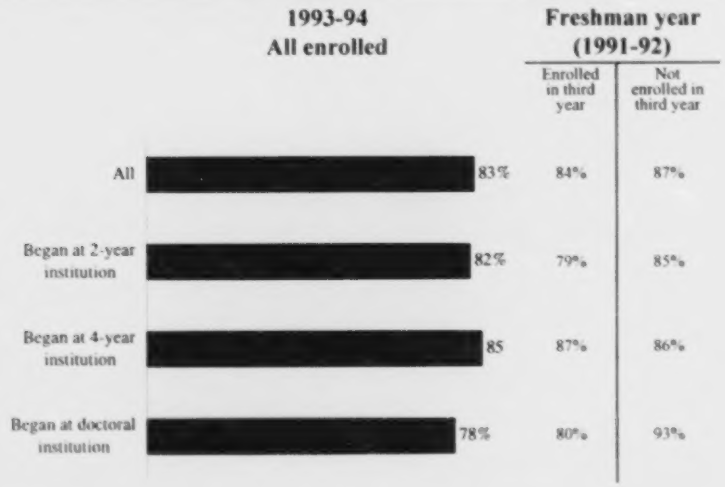
NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1994*.

Concern with Finances

The rate of concern about finances would appear not to have decreased significantly since the freshman year (figure 5-10). Among those who were enrolled in the third year, 84 percent had initially expressed either "some" or "major" concern about financing a college education, and about the same percent (83) expressed this same concern in 1994. It is revealing that there remains a significant level of concern expressed at a time when most of the enrolled students have reached more than the halfway point toward a 4-year college degree.

Figure 5-10
Percent of SSS participants who have some or major concerns about financing college degree, by freshman-year institution and third-year enrollment status: 1991-92 and 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92* and *Third Year Followup Survey, 1994.*

Educational Aspirations and Expectations

In comparing the educational expectations of SSS participants with freshmen as a whole, we found that SSS participants had equal or higher expectations when compared with all college freshmen in the baseline year (see appendix table E-3). While SSS participants still had high educational aspirations 3 years later, they had also developed a more pragmatic set of specific educational goals. At the third year, respondents were asked to identify the highest academic degree they "would like" to obtain and that they "expect" to obtain. Overall, almost two-thirds of the SSS participants indicated they would like to obtain a degree beyond the bachelor's. About a quarter indicated the highest degree they wished to obtain was a bachelor's, and only 10 percent did not wish to obtain at least a bachelor's degree (table 5-12). The most frequently chosen degree was a master's degree (39 percent), and 20 percent would like to obtain a Ph.D.

Table 5-32
Highest degree SSS participants enrolled in the third year would like to obtain or expect to obtain: 1993-94

Degree	Would like to obtain	Expect to obtain
None	2%	4%
Vocational certificate	2	2
Associate's	6	10
Bachelor's	24	37
Master's	39	33
Ph.D. or Ed.D.	20	9
M.D., D.O., D.D.S., or D.V.M.	3	2
LL.B. or J.D.	3	2
B.D. or M.DIV.	0	0
Other	1	1

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Followup Survey, 1993-94*.

Only 16 percent of all students and 9 percent of enrolled students expected to obtain less than a bachelor's degree (tables 5-32 and 5-33). About 37 percent of all students expected that a bachelor's degree will be their highest degree. Comparing what students would like to obtain with what they expected to obtain, the biggest difference was with regard to Ph.D.s. Twenty percent would like to obtain a Ph.D., although only 9 percent expected to do so.

Table 5-33
Highest degree SSS participants at the third-year point would like to obtain and expect to obtain, by third-year enrollment status: 1993-94

Degree	Highest degree would like		Highest degree expected	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Less than bachelor's	5%	21%	9%	34%[1]
Bachelor's	21	33	37	37
Master's	42	31	37	21
Ph.D.	24	10	11	4
M.D.	4	3	2	2
J.D.	3	1	2	1
D.D.	0	0	0	0
Other	1	1	1	0

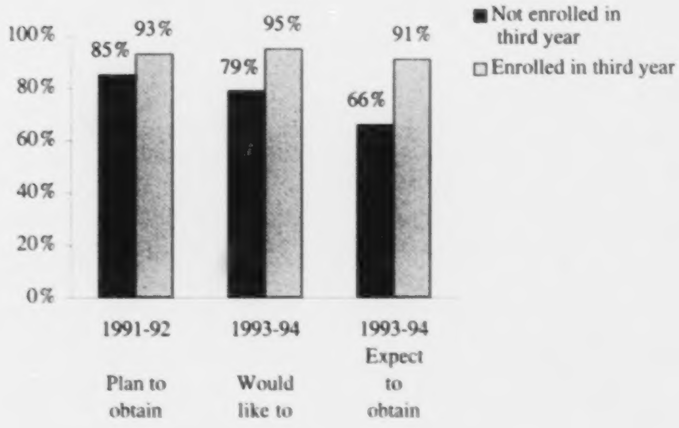
[1] Thirteen percent indicate no degree expected. 21 percent expect an associate's degree or vocational certificate.

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Followup Survey, 1993-94*.

As one might expect, educational aspirations/expectations of those not enrolled were lower at the outset than among those enrolled. (figure 5-11), and these differences increased over the period since 1991-92. Among those not enrolled in 1993-94, about one-third (34 percent) indicated that they now expected to obtain less than a bachelor's degree, compared about 15 percent of this group in 1991-92. It should be noted, however, that even among those not enrolled about two-thirds still indicated that they expected to obtain a bachelor's degree or higher, and 79 percent stated they would like to obtain a bachelor's degree (figure 5-11).

Figure 5-11
Percent of SSS participants who plan, would like, or expect to obtain a bachelor's degree or higher, by third-year enrollment status: 1991-92 and 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*, and *Third Year Followup Survey, 1994*.

Aspirations of students in 2-year schools. When they entered college, most 2-year college students planned to obtain a bachelor's degree or greater. Among those who were enrolled in the third year, only 20 percent expected less than a bachelor's when they were freshmen, and among those not enrolled, the percentage of those expecting less than a bachelor's was only somewhat higher (26 percent) (table 5-34). By the third year, however, 43 percent of the nonenrolled who began at 2-year institutions expected less than a bachelor's degree, including 12 percent who expected to receive no degree. Among those enrolled in the third year who began in 2-year schools, 23 percent expected less than a bachelor's degree.[10]

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[10] One percent expected no degree

Table 5-34
Educational aspirations of SSS participants who began at 2-year colleges, by freshman-year plans, third-year plans, and third-year enrollment status: 1991-92 and 1993-94

Third-year plans	Would like to obtain	Expect to obtain
Enrolled in third year		
Less than bachelor's degree	14%	23%
Bachelor's degree	28	36
More than bachelor's degree	57	40
Not enrolled in third year		
Less than bachelor's degree	26	43[1]
Bachelor's degree	29	31
More than bachelor's degree	43	24
Freshman-year plans	Planned to obtain	
Enrolled in third year		
Less than bachelor's degree	20%	
Bachelor's degree or greater	80	
Not enrolled in third year		
Less than bachelor's degree	26	
Bachelor's degree or greater	74	

[1] Twelve percent expected no degree, 7 percent expected vocational certificate, and 24 percent expected associate's degree.

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*, and *Third Year Followup Survey, 1994*.

Ability to complete college. Independent of specific educational plans, the vast majority of SSS participants believed they had the ability to complete college (table 5-35). Among those enrolled in the third year, 83 percent thought they definitely had the ability to complete college and 14 percent thought they probably had the ability to do so. Even among those not enrolled, the percentage that were confident they could complete college was still quite high. Sixty-six percent believed they definitely had that ability, and 23 percent thought they probably had the ability to complete college. The confidence in college completion rate for both groups remained almost unchanged from their rates as freshmen.

Table 5-35
Perceptions of SSS participants of their ability to complete college, at freshman and third years, by third-year enrollment status: 1991-92 and 1993-94

Student status	Freshman-year definitely/ probably combined	Third-year perception		
		Definitely/ probably combined	Definitely	Probably
Enrolled in third year	96%	97%	83%	14%
Not enrolled in third year	91	89	66	23

NOTE: Among the total SSS participants in the third year, 79 percent thought they definitely had the ability to complete college and 16 percent thought they probably had the ability to complete college.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*, and *Third Year Followup Survey, 1994*.

Satisfaction with College

By the third year, SSS participants were generally satisfied with both college as a whole and the institution they were currently attending, but not as satisfied as when they were freshmen. They were also somewhat more enthusiastic about college in general than about their specific school. Satisfaction with school choice and college was not significantly different among those enrolled and not enrolled, with the exception of third-year nonenrolled students who began at institutions granting doctorates. They expressed lower satisfaction rates than other students at the outset, and those rates have dropped by greater amounts over time (table 5-36).

Table 5-36
Percent of SSS participants who would select the same school they last attended, at freshman year and third-year point, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Third-year enrollment status and freshman-year institution	Freshman year	Third year		
	Definitely or probably (combined)	Definitely or probably (combined)	Definitely	Probably
Enrolled in third year	83%	71%	37%	34%
Began at 2-year institution	82	71	41	30
Began at 4-year institution	84	72	37	35
Began at doctoral institution	81	69	34	35
Not enrolled in third year	79	67	38	29
Began at 2-year institution	79	73	42	31
Began at 4-year institution	81	67	38	29
Began at doctoral institution	71	49	27	22

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*, and *Third Year Followup Survey, 1994*.

Among enrolled students at the third-year point, the rate at which they reported they would attend the same school (definitely and probably combined) was 71 percent, while among those not enrolled in the third year the rate was 67 percent. The lowest satisfaction was reported by students who began at institutions granting doctorates and who were not enrolled in the third year. Among that group just under half (49 percent) indicated they would select the same college, down from 71 percent when they were freshmen. Overall, by the third year, about 30 percent of the students would select a different institution if they were to start again.

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In the third year, the rates at which students reported they liked college in general were somewhat higher than the rates at which they would select the same school. Among those enrolled, 41 percent said they were enthusiastic about college, and another 43 percent said they liked it (table 5-37). Enthusiasm was only somewhat higher among those enrolled than among those not enrolled, with 84 percent of enrolled indicating they were enthusiastic or liked college, and 77 percent of those not enrolled indicating that they were enthusiastic about or liked college. The rates for both groups were down slightly from their freshman year, when 89 percent of the enrolled group and 86 percent of the nonenrolled students indicated they were enthusiastic about or liked college. Similar to the responses about choice of college, the least satisfaction with college was expressed by nonenrolled students who began at doctoral institutions; their satisfaction rate for college in general was 65 percent, down from 73 percent as freshmen.

Table 5-37
Percent of SSS participants expressing satisfaction with college at freshman and third years, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Third-year enrollment status and freshman-year institution	Freshman year	Third year		
	Enthusiastic or liked it (combined)	Enthusiastic or liked it (combined)	Enthusiastic	Liked it
Enrolled in third year	89%	84%	41%	43%
Began at 2-year institution	91	87	45	42
Began at 4-year institution	89	84	40	44
Began at doctoral institution	87	83	41	42
Not enrolled in third year	89	77	37	40
Began at 2-year institution	91	80	40	40
Began at 4-year institution	86	78	36	42
Began at doctoral institution	73	65	33	32

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92,* and *Third Year Followup Survey, 1994.*

Self-Concept

Respondents were asked to assess themselves in a number of cognitive and affective domains. Generally, SSS participants' assessments of their academic abilities increased slightly from when they were freshmen, especially among those who were enrolled in the third year. Their freshman estimates about the difficulty level of college seem to have been met, as their views had changed little over time.

With respect to noncognitive or affective domains, SSS participants expressed confidence in their abilities as compared with those of the average person their age. However, there were substantial differences on some items between enrolled and nonenrolled students, with nonenrolled students less likely to express self-confidence. For example, 71 percent of the enrolled students believed they were above average with respect to their "drive to achieve," but only 58 percent of nonenrolled agreed with that statement (table 5-38). When they were freshmen, 68 percent of the enrolled and 57 percent of the nonenrolled shared this view.

Table 5-38
Self-concept of SSS participants in various cognitive and affective domains in freshman and third years, by third-year enrollment status: 1991-92 and 1993-94

Domain	As freshmen		In third year	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Academic ability	46%	35%	55%	41%
Artistic ability	26	29	34	34
Drive to achieve	68	57	71	58
Emotional health	60	53	62	58
Leadership ability	53	48	60	55
Math ability	32	23	37	31
Physical health	58	52	63	60
Popularity	40	36	47	43
Intellectual self-confidence	58	55	66	56
Social self-confidence	56	55	62	53
Writing ability	39	37	49	43

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*, and *Third Year Followup Survey, 1994*.

Overall in the third year, 55 percent of enrolled students and 41 percent of nonenrolled students considered themselves above average with respect to academic ability, and both of these were somewhat higher rates than they expressed as freshmen (46 and 35 percent, respectively). With respect to math ability, however, 37 percent of enrolled and 31 percent of nonenrolled said they were above average, a larger percentage than felt that way in their freshman year. In general, SSS participants rated their intellectual confidence as high; 66 percent of enrolled and 56 percent of nonenrolled consider themselves above average, and the rate for enrolled students (but not the nonenrolled) was higher than when they were freshmen (when they were 58 and 55 percent, respectively).

In addition to a positive assessment of academic capabilities, SSS participants expressed positive attitudes similar to those they had as freshmen about specific performance-related items. For example, almost half of the enrolled students (48 percent) agreed with the statement "It should not be very hard to get a B average at college," and 57 percent said that "My college grades don't really reflect what I can do" (table 5-39). As freshmen, similar assessments were

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given, with 49 percent agreeing with the former statement and 60 percent agreeing with the latter. Nonenrolled SSS participants did not differ much from enrolled participants with respect to their views of the difficulty of college.

Table 5-39
Percent of SSS participants agreeing with various statements about their performance in freshman and third years, by third-year enrollment status: 1991-92 and 1993-94

Statement	As freshmen		In third year	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
It should not be very hard to get a B (3.0) average at college	49%	52%	48%	54%
I expect/have had a harder time than most students at college	25	28	29	29
Once I start something, I finish it	74	67	79	60
I am as skilled academically as the average applicant to college	69	55	79	72
I expect/have encountered racism at college	38	30	37	23
My friends and relatives don't feel I should go to college	4	6	5	4
If course tutoring is available on the campus at no cost, I attend/attended regularly	77	71	52	53
My college grades don't reflect what I can do	60	70	57	62
My family has always wanted me to go to college	84	77	84	82

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*, and *Third Year Followup Survey, 1994*.

It appears that student's expectations about the likelihood of encountering racism were met. As freshmen, 38 percent of the third-year enrolled group agreed with the statement, "I expect I will encounter racism at this college." In the third year, 37 percent of the enrolled students reported that "I have encountered racism at college." Among the nonenrolled, however, expectations ran higher than actual experiences. Thirty percent expected to encounter racism, but only 23 percent reported that they had encountered it. Of course, they have had less overall educational exposure.

The one area where there was a substantial change was in students' expectations of using tutoring: students were much more likely to expect to use tutoring as freshmen than they were to report they actually had used it after 3 years (71-77 percent versus 52-53 percent).

THE USE OF SUPPORT AND DEVELOPMENTAL SERVICES AND COURSES

In this section of the chapter, we explore the use of general and SSS support and developmental services by SSS participants. These include general services as well as SSS services. We also look at SSS participants' assessment of the usefulness of the SSS services they received. In observing overall service use, we compare the experience of SSS participants with that of the comparison group. As we noted at the outset, while the comparison students were selected to maximize their similarity to the SSS participants, they were somewhat more advantaged, both academically and economically (see chapter 6). As a result, the comparisons are intended to be illustrative, but they are not comparisons between equivalent groups. The outcomes analysis in chapters 6 through 8 uses the statistical methods to control for these differences.

The Overall Use of Services

SSS participants who were enrolled in the third year made substantial use of support services, especially during their first year in college, and they made considerably greater use of those services than the comparison group. Over time, however, the use of support services by both groups fell, but the decline for SSS participants was somewhat steeper. As a result, SSS participants became more like the comparison group with respect to the use of services. SSS participants who were not enrolled in the third year tended to have used fewer services during the first year of school than their counterparts who were enrolled in the third year.

Tutoring. More SSS students received tutoring than any other support service except counseling. Since entering college, 63 percent of SSS participants reported they had received tutoring (figure 5-12). In contrast, only 36 percent of comparison group members reported receiving any tutoring. Of those enrolled in the third year, 68 percent of the SSS participants indicated they had received tutoring, while 49 percent of those SSS participants who were not enrolled in the third year received any tutoring (table 5-40). Tutoring was even more common among those SSS students who began at doctoral institutions and were still enrolled, with almost three-quarters (74 percent) indicating that they had received tutoring. In contrast, only 41 percent of comparison group members who were still enrolled had any tutoring, although 54 percent of those who began at doctoral institutions received this service.

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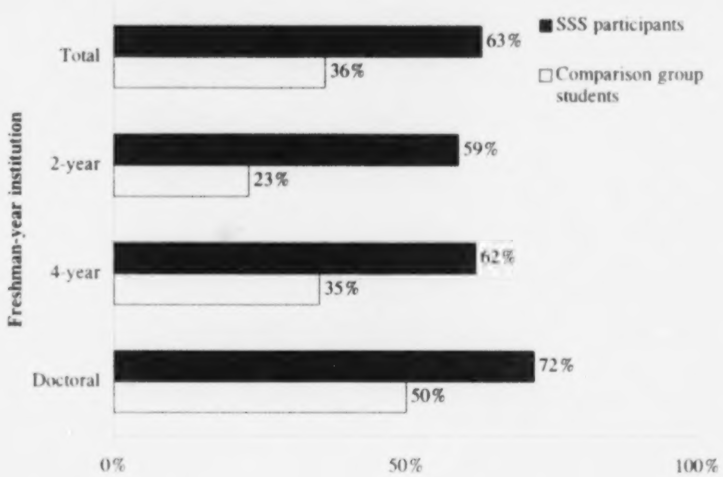
Figure 5-12
Percent of SSS participants and comparison group students receiving tutoring since entering college, by freshman-year institution: Cumulative through 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Tutoring in mathematics was the most common form of tutoring. Of those SSS participants enrolled in the third year, tutoring in "other" math (not developmental) courses was the most common, with 36 percent indicating that they had received such tutoring. Among those who were not enrolled, however, developmental math tutoring was the most common form of tutoring (23 percent). SSS participants received both developmental and regular math tutoring far more frequently than comparison group members. Among the enrolled third-year participants, 20 percent of SSS students had developmental math tutoring compared with 8 percent of comparison group members. Thirty-six percent of SSS participants but only 22 percent of comparison students received other math tutoring.

Tutoring in English was less common than tutoring in math. Among SSS participants as a whole, 1 in 10 reported tutoring in regular English courses, and 15 percent reported having received developmental/remedial English tutoring (data not shown). Among those enrolled in the third year, receipt of developmental and regular English tutoring was about equally common; 16 percent had received developmental English tutoring and 14 percent had received "other" English tutoring (table 5-40). In contrast, only 4 percent of enrolled comparison group members reported receiving developmental English tutoring and only 5 percent reported receiving other English tutoring.

Table 5-40
Percent of SSS participants and comparison group students using various tutoring services, by third-year enrollment status and freshman-year institution: 1991-92 and 1993-94

Tutoring service	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Any tutoring[1]	68%	49%	41%	21%
Began at 2-year institution	66	50	28	17
Began at 4-year institution	67	45	38	23
Began at doctoral institution	74	64	54	27
Developmental math tutoring	20	23	8	5
Began at 2-year institution	16	22	7	2
Began at 4-year institution	21	24	7	7
Began at doctoral institution	20	19	8	10
Other math tutoring	36	19	22	9
Began at 2-year institution	34	18	14	7
Began at 4-year institution	35	16	20	10
Began at doctoral institution	42	34	32	12
Developmental English tutoring	16	14	4	5
Began at 2-year institution	21	15	3	5
Began at 4-year institution	17	14	5	6
Began at doctoral institution	8	14	2	1
Other English tutoring	14	7	5	2
Began at 2-year institution	13	5	3	2
Began at 4-year institution	14	7	5	3
Began at doctoral institution	12	8	6	2
Science tutoring	23	9	15	4
Began at 2-year institution	24	5	9	3
Began at 4-year institution	20	8	11	3
Began at doctoral institution	35	22	27	10
Social science tutoring	7	3	3	1
Began at 2-year institution	5	2	1	*
Began at 4-year institution	7	3	3	2
Began at doctoral institution	10	3	5	*
Foreign language tutoring	8	4	3	1
Began at 2-year institution	5	2	1	0
Began at 4-year institution	9	5	3	2
Began at doctoral institution	6	*	4	2

*Less than 0.5 percent.

[1] If the categories "enrolled" and "not enrolled" are combined, the percentages are 63 percent for all SSS participants and 36 percent for all comparison group students.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

Science tutoring was reported by 23 percent of the enrolled third-year SSS participants. It was most common among students who began at doctoral institutions, where one-third of the SSS participants reported science tutoring. Unlike English, science tutoring was relatively common among comparison group members, with 15 percent of those enrolled in the third year reporting that they had received some tutoring, including 27 percent of those who began in doctoral institutions.

Most SSS participants received tutoring relatively early in their educational careers. Among those enrolled in the third year who received any tutoring, 48 percent received tutoring in their first semester, 34 percent in their second semester, 29 percent in their third semester, and 22 percent in their fourth semester (table 5-41). Overall, among the total (enrolled and not enrolled) only 11 percent of SSS participants and 8 percent of the comparisons had received tutoring by the spring of 1994 (figure 5-13). In short, there was a substantial drop off in tutoring over time. For comparison group members, there was less tutoring, but the drop off over time was less. Of those enrolled in the third year, 22 percent received tutoring the first semester, dropping to 14 percent by the fourth semester. As a result, rates of tutoring for SSS participants and comparison group members moved toward each other over time, with the main reason being the decline in tutoring among the SSS participants.

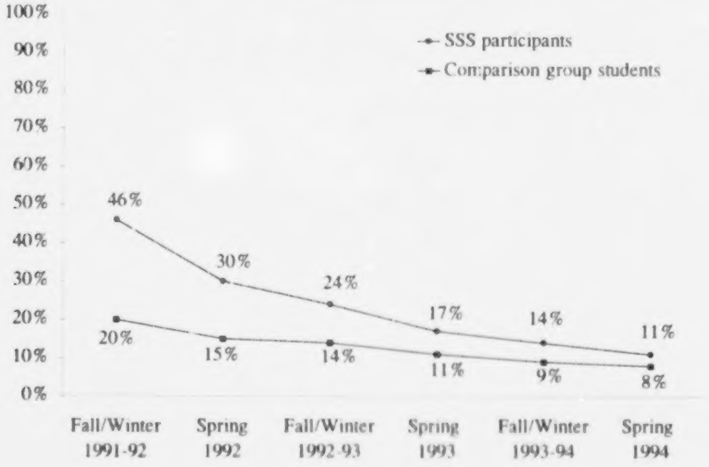
Table 5-41
Percent of SSS participants and comparison group students receiving tutoring at various times, by third-year enrollment status: 1991-92 and 1993-94

Time of tutoring	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Fall 1991	48%	40%	22%	14%
Spring 1992	34	20	18	8
Fall 1992	29	NA	17	NA
Spring 1993	22	NA	14	NA
Fall 1993	18	NA	12	NA

NA - Not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS). *Third Year Followup Survey, 1993-94.*

Figure 5-13
Percent of SSS participants and comparison group students receiving tutoring at any time during first 3 years



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Most tutoring for both groups took place on a weekly or biweekly basis. The most common provider of tutoring for SSS participants was another undergraduate student, but sizable percentages (55 percent) of SSS participants also reported having received some tutoring from graduate students and faculty members (table 5-42). Of the SSS participants who reported receiving any tutoring and were enrolled in the third year, 75 percent received at least some of their tutoring from another undergraduate, and 63 percent indicated that an undergraduate was the most common tutor (table 5-42 and figure 5-14).

Table 5-42
Percent of SSS participants and comparison group students who reported using various types of tutors, by third-year enrollment status: 1993-94

Type of tutor	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Faculty member				
Ever	27%	29%	33%	40%
Most frequent	14	18	17	33
Undergraduate student				
Ever	75	72	63	56
Most frequent	63	63	54	50
Graduate student				
Ever	28	20	36	16
Most frequent	18	12	24	11
Other hired persons				
Ever	13	11	10	12
Most frequent	5	7	5	7
Any professional tutoring (graduate, faculty, and other "ever" responses combined)	53	50	63	56

NOTE: Data in the table cover 63 percent of SSS participants and 36 percent of comparison group students.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

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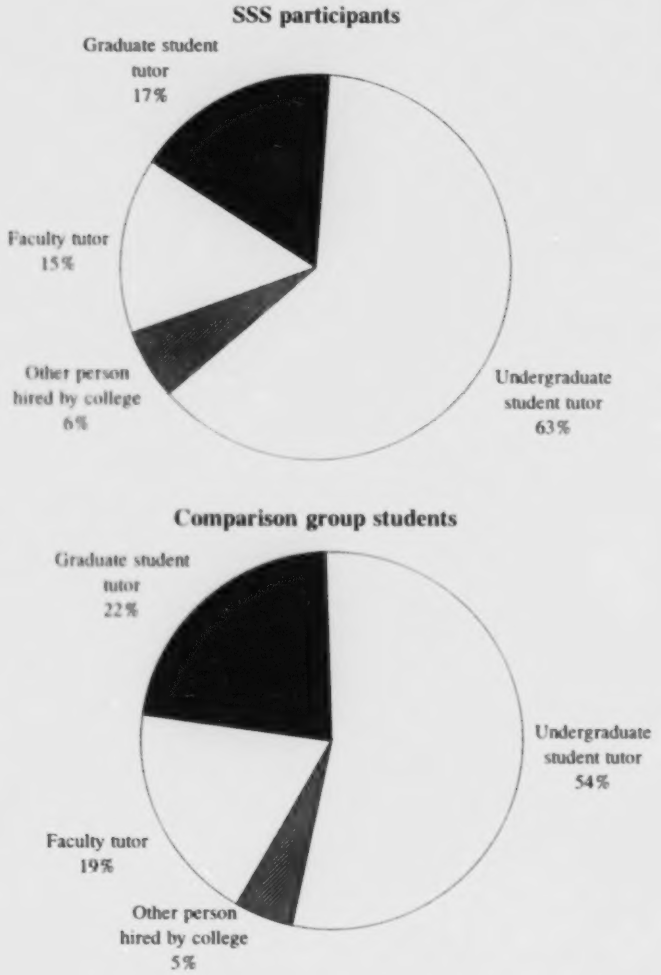
Figure 5-14
Percent of SSS participants and comparison group students who reported they used various types of tutors most frequently: 1993-94

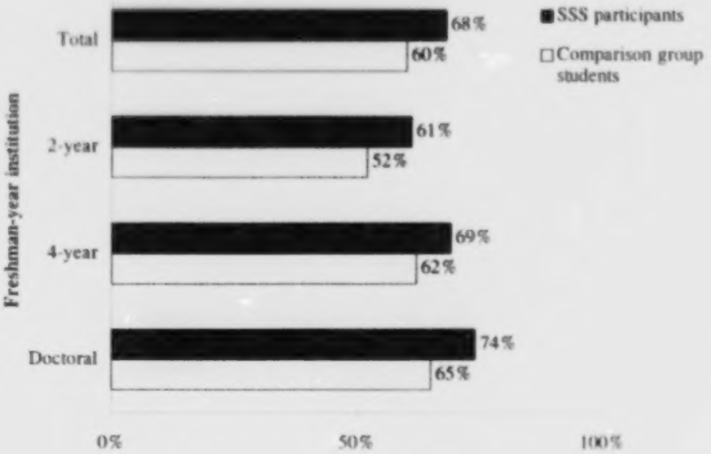


NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Counseling. Unlike tutoring, counseling was almost equally common among SSS participants and comparison group members (figure 5-15). Of those enrolled in the third year, 71 percent of SSS participants and 65 percent of comparison group members reported that they had obtained at least some counseling (table 5-43). SSS participants who were not enrolled were somewhat less likely than enrolled SSS participants to report having obtained any counseling, with 61 percent having obtained it when they were enrolled.

Figure 5-15
Percent of SSS participants and comparison group students reporting having received any type of counseling at least once since entering college, by freshman-year institution: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Table 5-43
Percent of SSS participants and comparison group students reporting having received counseling, by third-year enrollment status and type of counseling: 1993-94

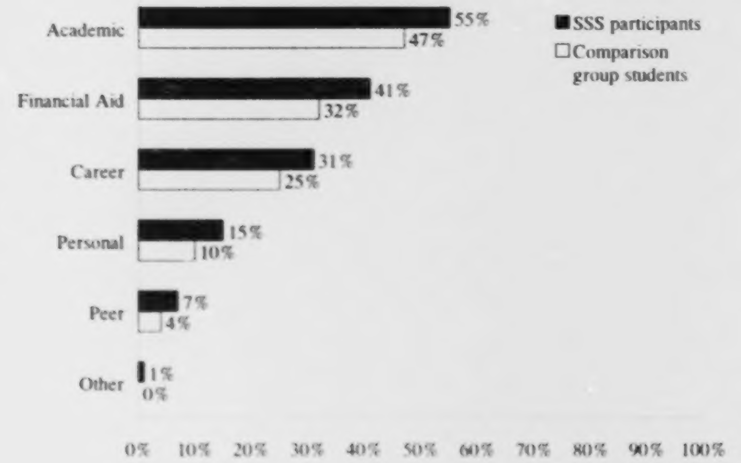
Type of counseling	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Any counseling	71%	61%	65%	47%
Academic counseling	59	45	51	33
Career counseling	34	23	28	16
Financial aid counseling	42	38	34	27
Personal counseling	16	14	11	7
Peer counseling	8	5	4	2

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Academic counseling was the most common form of counseling for both SSS participants and comparison group members (figure 5-16). Fifty-nine percent of enrolled third-year SSS participants and 51 percent of enrolled comparison students had received academic counseling (table 5-43). While it was also the predominant form of counseling among those not enrolled, fewer reported having ever received it (45 percent of SSS participants and 33 percent of comparison students).

Financial aid counseling was the next most common type of counseling, although it was received by considerably fewer students. Of the third-year enrolled, 42 percent of the SSS participants and 34 percent of comparison students indicated that they received such counseling. In this case, the rates for those not enrolled were lower but not by as much as in the case of academic counseling, with 38 percent of the nonenrolled SSS participants and 27 percent of the nonenrolled comparisons indicating that they had received some financial aid counseling.[11] Other forms of counseling—career, personal, and or peer—were reported by fewer than a third of all students.

Figure 5-16
Percent of SSS participants and comparison group students receiving selected counseling services: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Like tutoring, the use of counseling fell off steadily for SSS participants after the freshman year, and more so for SSS participants than for comparison group members. The result was that SSS participants and comparison group members indicated receiving counseling at roughly equivalent rates by the third year (figure 5-17). Among those who received any counseling and who were enrolled in the third year, 58 percent of SSS participants but only 46 percent of comparison group members received counseling as first-semester freshmen (table 5-44). By the third year, however, 47 percent of enrolled SSS participants and 42 percent of enrolled comparison group members were receiving counseling. Once or twice a term was the norm for both groups by this time. In short, counseling rates for SSS participants and comparison group members were quite similar by the third year.

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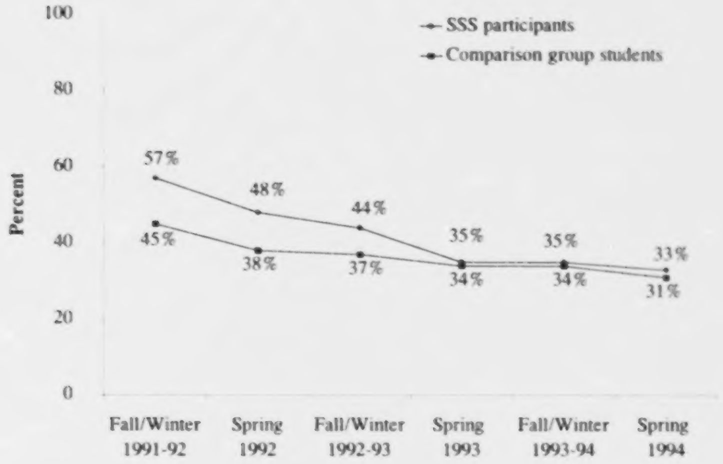
[11] As we shall discuss later in the chapter, nonenrolled SSS participants appear to have had somewhat greater financial aid needs when they entered college.

Figure 5-17

Percent of SSS participants and comparison group students receiving counseling at any time during the first 3 years



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Table 5-44

Percent of SSS participants and comparison group students receiving counseling, by third-year enrollment status and time of counseling: 1993-94

Time of counseling	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Fall 1991	58%	55%	46%	41%
Spring 1992	52	35	41	25
Fall 1992	52	NA	44	NA
Spring 1993	49	NA	41	NA
Fall 1993	47	NA	42	NA

NA - Not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

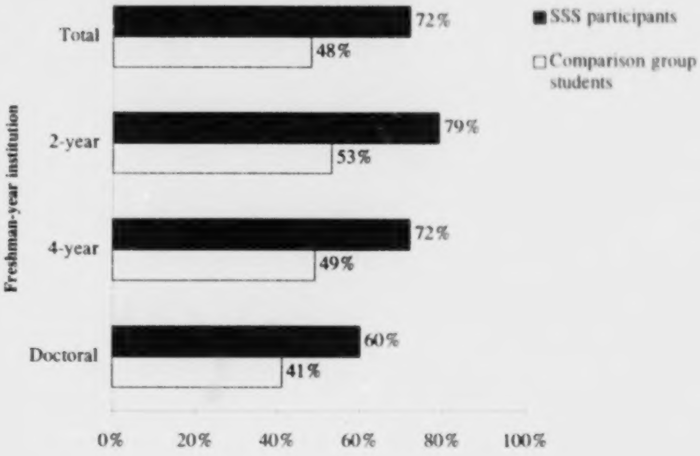
Developmental, study skill, and ESL courses. SSS participants took developmental (or remedial) courses at far higher rates than comparison group members (table 5-45 and figure 5-18), most likely because they entered college with greater academic need. Further, SSS participants who were not enrolled in the third year took developmental courses at greater rates than those who remained enrolled. Specifically, 49 percent of third-year enrolled SSS participants reported taking a developmental math course and 45 percent reported taking a developmental English course (table 5-46). Of those SSS participants not enrolled, however, the rates were 58 percent and 54 percent, respectively. In contrast, 29 percent of enrolled and 42 percent of nonenrolled comparison group members took a developmental math course. The rates for developmental English were 27 percent for third-year enrolled students and 40 percent for nonenrolled students. Those SSS participants who began in 2-year institutions took developmental courses at higher rates, with almost two-thirds having taken developmental math (62 percent of third-year enrolled and 65 percent of nonenrolled).

Table 5-45
Percent of SSS participants and comparison group students taking developmental, remedial skills, or English as a second language (ESL) courses at any time during first 3 years

Subject/course	Percent of SSS participants taking course	Percent of comparison group students taking course
Developmental or remedial math	51%	32%
Developmental or remedial English	47	30
Study skills	26	15
Basic skills	11	9
English as a second language (ESL)	6	4

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup, 1993-94.*

Figure 5-18
Percent of SSS participants and comparison group students who took a developmental course at any time during first 3 years, by freshman-year institution



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Table 5-46
Percent of SSS participants and comparison group students taking various support courses, by third-year enrollment status and freshman-year institution: 1993-94

Type of course and freshman-year institution	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Developmental math				
All students	49%	58%	29%	42%
Began at 2-year institutions	62	65	34	41
Began at 4-year institutions	48	57	30	44
Began at doctoral institutions	40	44	24	40
Developmental English				
All students	45	54	27	40
Began at 2-year institutions	55	61	33	41
Began at 4-year institutions	46	53	28	42
Began at doctoral institutions	31	37	21	29
Study skills				
All students	26	27	15	17
Began at 2-year institutions	26	23	15	14
Began at 4-year institutions	25	29	14	16
Began at doctoral institutions	27	34	16	24
Basic skills				
All students	10	15	7	15
Began at 2-year institutions	16	20	8	16
Began at 4-year institutions	10	14	8	15
Began at doctoral institutions	7	5	5	10
English as a second language (ESL)				
All students	5	6	3	5
Began at 2-year institutions	11	10	6	5
Began at 4-year institutions	5	4	2	4
Began at doctoral institutions	2	7	3	5
Any support course				
All students	69	78	45	57
Began at 2-year institutions	78	79	52	56
Began at 4-year institutions	70	80	46	61
Began at doctoral institutions	59	66	39	52

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Other support courses—study skills, basic skills, or English as a second language (ESL)—were taken by far fewer SSS participants. Among enrolled SSS participants, 26 percent took a study skills course, 10 percent took a basic skills course, and only 5 percent took ESL. These were considerably higher rates than for the comparison students, however.

Special services for students with disabilities. Few SSS participants received specific special services for students with disabilities. Respondents were asked whether they received such special assistance as transportation for the disabled, readers, interpreters, or note-takers. Fewer than 5 percent of either SSS participants or comparison group reported having received any such services (table 5-47). In both the SSS and comparison groups, third-year enrolled students were more likely to have received any such service than nonenrolled students.

Table 5-47
Percent of SSS participants and comparison group students receiving specialized services for students with disabilities, by third-year enrollment status: 1993-94

Service	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Any service	4%	2%	2%	*
Transportation	1	*	1	*
Readers	1	1	*	*
Interpreters	*	*	*	*
Note-takers	3	1	*	*
Other	3	1	1	*

*Less than 0.5 percent.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Students' Evaluation of General Support Services and Courses

SSS and comparison group participants were asked to rate the specific services they received in college regardless of whether they were obtained through the SSS program. In general, SSS participants considered the services they had received to be helpful. Based on a five-point scale, they more frequently gave higher ratings to the support services and courses than did comparison group members using the same services (table 5-48).[12] For example, 63 percent of enrolled SSS participants who had developmental math rated it as helpful compared with 51 percent of comparison students. Among enrolled SSS participants ratings ranged from 53 percent rating orientation as helpful to 68 percent rating tutoring by faculty or teaching assistants as helpful.

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[12] Nonenrolled comparison group members did not rate services as highly as did enrolled comparison group members. The only services ranked lower by nonenrolled than enrolled SSS participants were developmental math instruction, organized field trips, and study groups.

Table 5-48
Percent of SSS participants and comparison group students receiving various services who rated the service as "helpful" or "very helpful," by third-year enrollment status: 1993-94

Service	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Tutoring by faculty or teaching assistants	68%	70%	58%	51%
Tutoring by other students	60	65	60	47
Personal counseling	65	71	53	53
Academic counseling	62	63	58	55
Financial counseling	58	63	53	59
Job or career counseling	56	58	50	52
Basic or developmental instruction in reading or writing	57	63	53	59
English as a second language (ESL) instruction	61	67	56	43
Basic skills or developmental instruction in mathematics	63	58	51	54
Help in developing good study skills, or test-taking skills	53	58	48	53
General orientation to campus life, career choices, etc	53	60	51	58
Organized field trips to off-campus events	64	59	60	60
Special service for physically disabled students	55	56	60	--
Computer-assisted study labs	64	67	62	62
Organized group study sessions with other students	67	65	64	62

-- = Too few students for a reliable estimate.

NOTE: Percentages are based on respondents who chose either a "4" or a "5" on a 5-point scale ranging from 1 = "Not helpful" to 5 = "Very helpful."

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup, 1993-94*.

SSS participants and comparison group members were particularly favorable about organized study group sessions with other students. Two-thirds of the SSS participants and almost the same proportion of comparison group members rated this service as helpful. Computer-assisted study labs were also considered quite helpful by both groups. Relatively large percentages of third-year enrolled students reported that they participated at some point in both of these study aids (table 5-49).[13]

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[13] Sixty-six percent of enrolled SSS participants and 64 percent of enrolled comparisons report participating in study groups. Over half of the these groups also report participating in computer-assisted labs (57 and 51 percent, respectively).

Table 5-49
Percent of SSS participants and comparison group students who report having participated in an organized study group and in off-campus cultural events, by third-year enrollment status: 1993-94

Type of participation	SSS participants		Comparison group students	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Participated in study groups	66%	45%	64%	45%
Attended organized field trips to off-campus cultural events	41	18	38	13

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Helpfulness of SSS Services

Students who indicated that they had participated in SSS were also asked to rate the SSS program on specific dimensions related to student outcomes. SSS participants indicated that the program had been most helpful in those areas closest to academics and college retention and less helpful with regard to employment, social interaction, and solving personal problems (table 5-50). SSS services were most frequently rated as helpful in improving overall academic performance and helping pass a specific course, with over 60 percent of participants rating SSS useful for these purposes. Over half the participants (53 percent) said SSS was helpful in keeping them in school. Considerably fewer participants rated SSS useful for improving employment opportunities (31 percent) or improving social interaction (39 percent). Only slightly more than a quarter of the participants rated the program helpful with respect to helping solve problems (27 percent).

Table 5-50
Percent of SSS participants rating SSS services as helpful in various ways, by third-year enrollment status: 1993-94

Helpful in...	All participants	Enrolled in third year	Not enrolled in third year
Improving overall academic performance	61%	61%	59%
Improving employment opportunities	31	31	32
Helping solve personal problems	27	27	29
Improving social interaction	39	38	42
Improving basic skills	54	52	59
Helping pass a specific course	62	62	61
Helping to stay in school	53	54	46

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Table 5-51

Percent of SSS participants agreeing with various statements about value of SSS program, by third-year enrollment status and freshman-year institution: 1993-94

Value and freshman-year institution	All participants	SSS participants	
		Enrolled in third year	Not enrolled in third year
The SSS program helped me stay in school	49%	50%	44%
Began at 2-year institution	57	60	51
Began at 4-year institution	48	49	43
Began at doctoral institution	44	46	30
I have more confidence	52	52	53
Began at 2-year institution	63	64	62
Began at 4-year institution	51	50	53
Began at doctoral institution	44	47	30
The SSS staff supportive	70	71	70
Began at 2-year institution	77	78	74
Began at 4-year institution	70	70	70
Began at doctoral institution	65	67	54
The SSS staff is accessible	78	77	79
Began at 2-year institution	77	77	79
Began at 4-year institution	78	78	79
Began at doctoral institution	76	76	76
My organizational skills improved	52	50	56
Began at 2-year institution	62	61	63
Began at 4-year institution	51	50	57
Began at doctoral institution	41	42	35
Helped career plans	38	38	38
Began at 2-year institution	52	54	49
Began at 4-year institution	38	39	35
Began at doctoral institution	23	23	20
Long range plans improved	44	43	45
Began at 2-year institution	56	59	52
Began at 4-year institution	44	43	45
Began at doctoral institution	30	30	26
Overall satisfied with program	75	75	73
Began at 2-year institution	82	84	78
Began at 4-year institution	74	74	73
Began at doctoral institution	69	70	61
Would recommend SSS to others	81	81	80
Began at 2-year institution	84	86	82
Began at 4-year institution	82	82	83
Began at doctoral institution	74	76	65
More motivated to continue than when began	41	39	49
Began at 2-year institution	53	53	52
Began at 4-year institution	40	38	49
Began at doctoral institution	33	31	43
More aware of college resources	69	69	70
Began at 2-year institution	76	78	71
Began at 4-year institution	69	68	71
Began at doctoral institution	62	62	61

NOTE: Respondents were asked whether they strongly agreed, agreed, were neutral, disagreed, or strongly disagreed. Figure given in table is percent choosing agreed or strongly agreed.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

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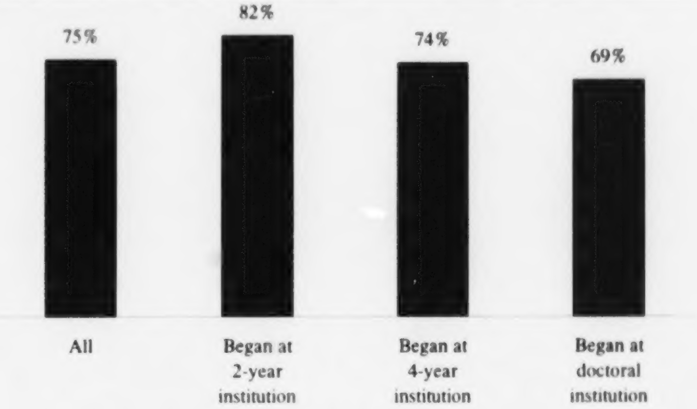
SSS participants were also asked whether they agreed or disagreed with certain statements about SSS and its impact on them (table 5-51). In general, SSS participants gave the program high ratings, especially for those items having to do with academic components, and the staff. Students who began in 2-year institutions were generally more positive about SSS than other students, while those who began at doctoral institutions were less supportive on almost all items. There were, however, few differences in ratings between enrolled and nonenrolled SSS participants. For example, 75 percent of the SSS third-year enrolled respondents agreed with the statement, "Overall, I am satisfied with the SSS program."[14] Nonenrolled students agreed with the statement at almost the same rate (73 percent). Those who began in 2-year colleges were more likely to express satisfaction (82 percent) than those who began at 4-year or doctoral institutions (figure 5-19). Overall, 81 percent of the respondents said they would recommend the SSS program to friends and relatives (figure 5-20), a level of agreement that was about the same for students who began at 2-year and 4-year institutions. Those least likely to recommend the program were nonenrolled students who began at doctoral institutions, but even they would recommend the program at a rate of 65 percent (table 5-51).

Figure 5-19
Percent of SSS participants who were satisfied with the SSS program overall, by freshman-year institution: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Participants saw SSS staff as supportive and accessible to them. SSS participants as a whole expressed a high degree of satisfaction with staff accessibility, with 77 percent of enrolled participants and 79 percent of nonenrolled agreeing that "the SSS staff has been accessible to me when I needed help." This response was consistent across students in all three types of colleges. In addition, 71 percent of enrolled and 70 percent of nonenrolled participants agreed with the statement "The SSS staff has been very supportive of me in my efforts as a student." Sixty-nine percent of enrolled and 70 percent of nonenrolled participants agreed that because of SSS they were more aware of college/university and community resources.

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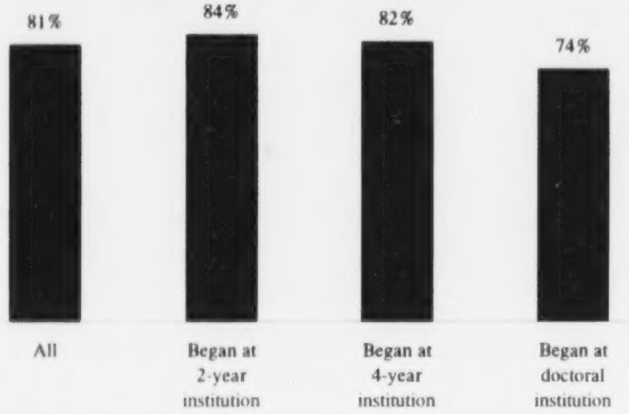
[14] Those respondents who agreed and agreed strongly are combined in this response category.

Figure 5-20
Percent of SSS participants who would recommend the SSS program to others, by freshman-year institution: 1993-94



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Respondents were somewhat less likely to agree that SSS had affected their motivation or their planning for the future. Fifty percent of enrolled and 56 percent of nonenrolled participants felt that their skills in organization were improved as a result of SSS (see table 5-51). Similar percentages felt that they had more self-confidence as a result of the SSS program. Forty-three percent of enrolled and 45 percent of nonenrolled agreed that their long-range planning skills improved as a result of SSS. Somewhat fewer participants agreed that the SSS program helped them to make career plans. Again, SSS participants who began in 2-year institutions delivered more positive evaluations than those who began in doctoral institutions. Nonenrolled students who began in doctoral institutions gave somewhat less positive rankings throughout.

About 50 percent of enrolled students agreed with the statement, "The SSS program helped me to stay in school," as did 44 percent of the nonenrolled. The lowest rating on this item came from nonenrolled students who began at doctoral institutions, where only 30 percent agreed (table 5-51).

Students' Suggestions for the SSS Program

In an open-ended format, 718 students wrote about 804 comments about the SSS program (table 5-52). The most common suggestions were to make the program more widely known, to increase the types of services available, and to hire more staff. A large number of comments offered (109) were positive comments about the helpfulness of the SSS program.

Table 5-52
Suggestions made by SSS participants for improving the SSS program: 1993-94

Suggestion	Number of comments	Percent of comments
Make the program more known	117	15%
Increase service types	115	14
Hire more staff	111	14
Positive comments on helpfulness	109	14
More supportive staff	73	9
More accessible	65	8
Hire more qualified staff	48	6
Need more financial assistance	51	6
Increase service/time frequency	42	5
Other	42	5
Services not helpful	16	2
Better locations and facilities	15	2
Total	804	100%

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

The most frequently noted suggestion was to make the SSS program and its range of services better known to students in general and known earlier in the college careers of those who become participants (117 comments). Wider publicity was suggested, for example, through the use of flyers or newsletters.

An increase in the range of services was another frequent suggestion (115 comments). Additional services that SSS students suggested included more individual help or one-on-one advising, more academic assistance with advanced, nondevelopmental courses, and more outside activities.

A common request was for stronger career-related services or classes and for a sharper focus on career choices and career counseling. Another frequently mentioned suggestion was for closer connections and followup by the SSS program with the individual student throughout the college years.

Respondents suggested hiring more staff (111 comments) and ensuring that staff were more supportive (73 comments) and more accessible to students (65 comments). Thirteen percent of the comments indicated that due to insufficient staff, timely help was not available, counselors or tutors often had too many students to serve, or it was difficult to get immediate help.

Some respondents said that more staff were needed to offer tutoring on more advanced subjects such as calculus, biology, computer science, engineering, nursing, etc.

Comments also included a desire for more staff communication with students and that more interest be shown in students' personal lives. Comments on accessibility called for the program to be more inclusive in terms of serving all students who need help. The point was made that if SSS is not accessible to all students, the institution should let students know the rules and criteria governing who can be served through the program.

Forty-eight comments suggested that the staff be more qualified and experienced. Some students commented that some tutors lacked experience or training and were unable to explain the information or materials effectively. Similarly, some commented that tutors did not know the material or were unable to speak English fluently.

Other suggestions called for counselors to be more knowledgeable. For example, they should know the overall subject curriculum better so that they can refer students to the proper courses. It was suggested that financial aid counselors have more resources so that they can tell students about the advisability and availability of the various kinds of financial aid.

Fifty-one comments raised a need for more financial aid guidance. Since most SSS students were accepted to the program based on financial need, some students suggested that the program take more interest in students' financial aid problems and do more research on the variety of sources of financial aid available to participants.

Noting limited staff and the fact that many SSS students work during the day, respondents frequently suggested more flexible service hours, mostly evening hours. SSS students also suggested that tutoring and counseling take place more frequently, from approximately once a week to at least twice a week.

THE ROLE OF WORK IN STUDENTS' LIVES

In this section we examine the role of work among both enrolled and nonenrolled SSS participants in our study. Among those enrolled in 1993-94, we found that more students were working in their third year of school than during their freshman year. Two-thirds of the SSS participants enrolled in 1993-94 reported that they were working while in school (table 5-53).[15] When they were freshmen, 49 percent of this group reported that they were working while in school. In addition, 11 percent were unemployed, meaning that they reported they were not working but were looking and available for work. Students who began at 2-year colleges were less likely to be working (58 percent) than those who began at 4-year or doctoral institutions. However, enrolled students who began at 2-year colleges had an unemployment rate of 15 percent. About 22 percent of third-year enrolled students were working full time, but the rate was somewhat higher among students who began at 2-year schools (26 percent). About 26 percent reported that they worked on campus, and 21 percent participated in work study.[16]

Table 5-53
Employment characteristics of SSS participants in freshman and third years, by third-year enrollment status and freshman-year institution: 1993-94

Employment characteristics and freshman-year institution	Freshman year		Third year	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
Employed				
All students	49%	51%	66%	74%
Began at 2-year institution	47	42	58	66
Began at 4-year institution	51	57	68	79
Began at doctoral institution	40	54	68	73
Employed full time				
All students	NA	NA	22	52
Began at 2-year institution	NA	NA	26	44
Began at 4-year institution	NA	NA	23	57
Began at doctoral institution	NA	NA	18	53
Unemployed[1]				
All students	NA	NA	11	10
Began at 2-year institution	NA	NA	15	14
Began at 4-year institution	NA	NA	11	8
Began at doctoral institution	NA	NA	7	11
Campus-employment				
Work on campus	NA	NA	26	NA
Participate in work study	17	13	21	NA
Mean yearly salary of third-year full-time employed				
All students	NA	NA	$14,931	$15,781
Began at 2-year institution	NA	NA	15,314	15,858
Began at 4-year institution	NA	NA	14,437	15,134
Began at doctoral institution	NA	NA	16,574	18,776

[1] Unemployed is defined as not working but looking and available for work.

NA - Not asked in initial survey.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

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[15] In another question that asked about on/off-campus work, 69 percent indicated that they were working while going to school.

[16] Of the total enrolled, 69 percent were working—26 percent on campus and 43 percent off campus.

The work that enrolled students were doing was largely non-professional. About one third of the students (31 percent) were working in clerical/support positions and 21 percent were in sales (table 5-54). Another 10 percent were positions in service work and 9 percent were in craft/laborer employment. A little over a quarter of the students (28 percent) had work classified as professional/technical.

Table 5-54
Broad occupational fields of employed SSS participants, by third-year enrollment status and freshman-year institution: 1993-94

Occupational field and freshman-year institution	SSS participants	
	Enrolled in third year	Not enrolled in third year
Clerical and support	31%	22%
Began in 2-year institution	25	16
Began in 4-year institution	31	25
Began in doctoral institution	35	30
Sales	21	20
Began in 2-year institution	18	18
Began in 4-year institution	23	21
Began in doctoral institution	16	19
Service	10	16
Began in 2-year institution	13	23
Began in 4-year institution	10	14
Began in doctoral institution	9	8
Professional/technical	28	25
Began in 2-year institution	30	22
Began in 4-year institution	27	26
Began in doctoral institution	33	26
Crafts/laborers	9	17
Began in 2-year institution	13	22
Began in 4-year institution	9	14
Began in doctoral institution	7	17

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Current work was viewed as related to education by just under half of enrolled students. About 47 percent said that the work was either "closely" or "somewhat" related to their education (table 5-55), and only 42 percent said their college studies were helpful in performing their jobs (table 5-56). About half the working students believed that their jobs had any career potential (50 percent overall, but only 35 percent among those who began at doctoral institutions).

Table 5-55
Percent of SSS participants indicating current employment is "closely" or "somewhat" related to education, by third-year enrollment status and freshman-year institution: 1993-94

Freshman-year institution	Enrolled in third year	Not enrolled in third year
All students	47%	37%
Began at 2-year institution	52	42
Began at 4-year institution	49	38
Began at doctoral institution	38	24

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

Table 5-56
Percent of SSS participants perceiving education as "helpful" to current job and that job has career potential, by third-year enrollment status and freshman-year institution: 1993-94

Perception and freshman-year institution	Enrolled in third year	Not enrolled in third year
Education helpful in		
Obtaining job	36%	30%
Salary	22	20
Performing job	42	33
Job advancement	32	30
Job has career potential	50	70
Began at 2-year institution	57	67
Began at 4-year institution	53	73
Began at doctoral institution	35	57

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*

As might be expected, the enrolled working students appeared mobile with respect to jobs. Only 17 percent said that they considered their current jobs to be permanent (although 27 percent of those who began at 2-year colleges considered their jobs permanent) (table 5-57). Almost a third of the working students (32 percent) indicated that they were looking for a different job (data not shown in tables). A little over a third of the students (35 percent) rated their job satisfaction as high, while 17 percent rated it as low (table 5-58). Despite the lack of congruence between work and education, students were devoting substantial hours to work. Enrolled students reported spending an average of 26.6 hours a week working (table 5-59). Among the enrolled students working full time (22 percent), their average salary was $14,931 (see table 5-53).

Table 5-57
Percent of SSS participants perceiving their current job as permanent, by third-year enrollment status and freshman-year institution: 1993-94

Third-year enrollment status and freshman-year institution	Percent considering job permanent
Enrolled in third year	17%
Began at 2-year institution	27
Began at 4-year institution	17
Began at doctoral institution	10
Not enrolled in third year	48
Began at 2-year institution	50
Began at 4-year institution	49
Began at doctoral institution	40

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

Table 5-58
Percent of SSS participants satisfied with current job, by third-year enrollment status: 1993-94

Third-year enrollment status	Satisfaction level		
	High	Medium	Low
Enrolled in third year	35%	48%	17%
Not enrolled in third year	40	47	13

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

Table 5-59
Average hours worked per week by SSS participants who were working, by third-year enrollment status: 1993-94

Third-year enrollment status	Hours
Enrolled in third year	26.6 hours
Not enrolled in third year	36.7 hours

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94*.

Work patterns of nonenrolled students. SSS participants not enrolled in the third year show a different pattern. They were more likely to be working, to be working longer hours, and to see the work as more permanent and career related. Overall, 74 percent of the nonenrolled students were working, although the rate dropped to 66 percent for those who started at 2-year colleges (table 5-53). The unemployment rate for the nonenrolled group was 10 percent, meaning that taken together more of those not in school were either working or looking for and available for work. This group was somewhat less likely than enrolled students to be employed in clerical/support (22 percent), and more likely to be employed in service work (16 percent) and in craft/laborer jobs (17 percent) (table 5-54). As might be expected, they were more likely to be working full time (52 percent) and report an average of 36.7 hours of work per week.

The nonenrolled group was somewhat less likely than the enrolled to see their work as related to their education (table 5-55). However, they were more likely to see the work as permanent (table 5-57). Only 37 percent said their work was "closely" or "somewhat" related to their education, and only 33 percent said that their college studies were helpful to performing the work in contrast to the 42 percent of enrolled students who said their education was helpful. Nonetheless, a much higher percentage (48 percent) saw their current employment as permanent. Well over two-thirds (70 percent) said their current job held career potential. Their overall job satisfaction was somewhat higher than that of enrolled students.

Students who began at 2-year colleges and were not enrolled in the third year show a somewhat different pattern of work. They were less likely than other nonenrolled students to be working (66 percent) and were more likely to be unemployed (14 percent). They were also less likely to be working full time when they were working (44 percent). They were more likely than other non-enrolled students to be in service or crafts/laborer jobs (table 5-54). They were as likely as enrolled students to be looking for a different job (33 percent).

Career Expectations for Future Work

In line with their initial optimism about college completion, SSS participants have ambitious eventual career plans that have changed very little since the freshman year. Those SSS participants enrolled in the third year showed a strong expectation of work in professional fields, and they have become more definite about their occupational plans over time. Among the third-year nonenrolled, expectations of professional work were somewhat lower and clarity about career plans had declined slightly since freshman year. Nonetheless, most of this nonenrolled group still maintained definite or probable plans to pursue professional, technical, or managerial work.

Plans of Enrolled Students

Overall, SSS participants expect to pursue professional careers, and those plans appear firmly established by the third year. Among the enrolled third-year SSS participants, 86 percent expect to pursue professional, technical, or managerial work 5 to 10 years after college (table 5-60). This percentage is essentially unchanged from the freshman year, when 85 percent of this group expected to pursue such careers. For some, their plans have solidified over time. When they were freshman, 77 percent of third-year enrolled students reported that they had "definite" or "probable" career plans (table 5-61) By the third year, 86 percent gave that response. Over half of the enrolled students (56 percent) said their plans were definite, while another 29 percent indicate probable plans (data not shown). In other words, by the third year only a small minority (15 percent) indicated that they were "not really sure" or "not at all sure" of a career plan.

Table 5-60
Percent of SSS participants indicating they plan to pursue certain occupations, by third-year enrollment status: 1993-94

Planned occupation	Enrolled in third year		Not enrolled in third year	
	All	Began at 2-year	All	Began at 2-year
Third-year plans				
Clerical/support	4%	5%	7%	9%
Sales	3	2	3	2
Service	6	12	11	13
Professional/technical/management	86	79	69	64
Crafts/operators/laborer	1	1	6	8
Not working	1	1	4	3
Freshman-year plans				
Expected professional/management/ technical occupation	85	82	76	71

NOTE: Because of rounding, percents may not add to 100.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Table 5-61
Percent of SSS participants indicating "definite" or "probable" career plans, by third-year enrollment status: 1993-94

Freshman-year institution	Freshman year		Third year	
	Enrolled in third year	Not enrolled in third year	Enrolled in third year	Not enrolled in third year
All students	77%	75%	86%	70%
Began at 2-year institution	81	78	81	66
Began at 4-year institution	76	74	87	71
Began at doctoral institution	73	69	86	73

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Third Year Followup Survey, 1993-94.*

Plans of Nonenrolled Students

Among those not enrolled in the third year, freshman-year expectations of professional work were slightly lower than those of enrolled students. Career plans were also somewhat less firm in the third year among nonenrolled students than enrolled students. When they were freshmen, 76 percent of this group anticipated professional, technical, or management work 5 to 10 years after college (table 5-60). In the third year (i.e., when they were not attending college), however, 69 percent reported that they expected to be doing professional, technical, or managerial jobs. As freshmen, this group had almost identical levels of sureness about career plans as third-year enrolled students (75 percent said plans were definite or probable), but by the third year somewhat fewer (70 percent) reported either definite or probable plans. In other words, compared to the freshman year, fewer of the nonenrolled students (but still the vast majority) anticipated professional or technical work, although their sureness of their plans had weakened since freshman year.

SUMMARY OF DIFFERENCES BETWEEN ENROLLED AND NONENROLLED SSS PARTICIPANTS

There are several ways to interpret or address the variables associated with college retention. The National Study is primarily concerned with how the SSS program affects retention (as well as other outcomes), but there are clearly other factors that also affect whether a student is still enrolled several years after first entering college. In the literature review (chapter 3) we examined models of student development and retention and noted that most of the models share a common perspective that sees college outcomes as a result of the interaction of the attributes and conditions the student brings to college and the college experience itself (which may or may not include such characteristics as SSS participation). For SSS participants, these attributes interact with the services offered by SSS, and by focusing on the aspects of students' lives/attributes that may put them at risk of not completing college, we may gain insight into the most effective way to structure SSS services.

In this section, we summarize and further discuss some of the differences between those SSS participants enrolled and not enrolled in the third year. We begin by examining the reasons that the students themselves provided for leaving college, followed by a discussion of some of the differences between the groups at the third year. In some cases we go back to the freshman questionnaire data to look at some of the initial differences between the groups. Finally we include a summary exhibit that uses Tinto's model of student departure as a way of organizing the information on differences between enrolled and nonenrolled SSS participants.

It is important to note that we should not make too much of whether a student is enrolled or not enrolled at this single point in time. We are looking at retention only during the third year after the students entered college, and we know that some students who were enrolled at this point will not complete college while others who were not enrolled will return and eventually earn a degree. Only 8 percent of those not enrolled indicated that they considered themselves to be finished with their education. Nationally, around 19 percent of students had already left college for some period *and* reenrolled by the third year, and for minority students the rates were 23.4 percent for black, non-Hispanic students and 27.7 percent for Hispanic students (see table 2-6). Given the fluidity of the SSS cohort with respect to changing institutions, it is also likely that "stopping out" is not uncommon.

We have already noted several noneducational variables that do and do not appear to predict which SSS participants will be enrolled or not enrolled in the third year. Those not enrolled were more likely to have married since entering college, and they were also more likely to be caring for dependent children. We do not know how such responsibilities affect studies, but it seems likely that they place additional burdens on students' time and resources. They may also reflect a change in priorities among the former students. We have also seen that gender and race/ethnicity do not seem to strongly predict retention rates among the SSS cohort.[17]

When asked directly why they were not in school, nonenrolled members of the SSS freshman cohort focused heavily on financial reasons among the possible reasons provided (see table 5-31). Over half the group (56 percent) indicated that not having enough money was a reason for leaving—this was the most commonly selected item (respondents could select as many items as they wished).[18] The next most often cited reason was uncertainty about career goals or changed career plan, selected by 29 percent of the nonenrolled.[19] Leaving because of pregnancy or care of children was cited by 19 percent of the nonenrolled group (24 percent of those who started in 2-year colleges).

Those students not enrolled in the third year had substantially lower GPAs than those enrolled. For example, the first year GPA for those enrolled in the same school 3 years later was 2.58, while for those not enrolled, it was 1.98 in the freshman year. However, only 22 percent of those not enrolled in the third year said that poor grades were a factor in leaving, 10 percent said their courses were too difficult, and 4 percent indicated they were suspended or expelled. When asked to select the single most important reason for leaving, only 7 percent selected one of these three items. In contrast, 36 percent selected not having enough money. The next most commonly selected item was "other," suggesting that there were many idiosyncratic reasons for leaving or stopping out.

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[17] There also appears to be a relationship between mother's education and retention in the third year. It should be noted, however, that the overall percentage of mothers with a college education is low.

[18] When asked to select a single most important reason for leaving, 36 percent of the nonenrolled indicated "not enough money," more than double the next most commonly selected item.

[19] This item was more common among those who began at 2-year colleges (33 percent) and doctoral institutions (42 percent).

Beyond the explicit reasons that students provided, we can also observe differences between the third-year enrolled and nonenrolled students in college activities. As we have noted, nonenrolled students were more likely to have begun at 2-year institutions. They were also less likely to be enrolled full time initially, although the vast majority were full time (85 percent of nonenrolled, 93 percent of enrolled) in the first year. They were generally less likely to make contact with faculty and advisors and participate in campus activities. This was true in the freshman year as well as the last time they enrolled in college. While they had substantially lower GPAs than those who were enrolled in the third year, they were less likely to report that they used support services or courses (except developmental courses) even during the first year of college. Nonetheless, they were as supportive of, if not more favorably disposed to, the services they received.

When we look at the student responses in the freshman year by whether the students were enrolled 3 years later, we find that those who were not enrolled in the third year had somewhat greater ambivalence about going to college than when they began. That ambivalence can be seen in their planning about college. In addition, these students entered with less parental financial support and with lower high school grades and SAT/ACT scores. They had already established rates of service use that were lower than those of participants who remained enrolled in the third year.

Overall, the nonenrolled group did not appear to plan for college as systematically as the enrolled group. Only 66 percent had taken either the SAT or ACT, compared with 86 percent of those enrolled in the third year. When asked as freshmen why they decided to attend college, they were more likely to indicate that one reason was because they could not find a job (37 percent of nonenrolled, 28 percent of enrolled).[20] They were considerably less likely to have participated in a summer residential college program prior to the freshman year (12 percent of nonenrolled, 22 percent of enrolled). They were also less likely to have visited college campuses for orientations (61 percent of nonenrolled, 75 percent of enrolled). They were less confident that they would be able to stay in school continuously until graduation, with almost a third (31 percent) indicating there was a chance they would have to drop out of college temporarily (compared with 16 percent of third-year enrolled). They were only half as likely as other students to live on campus in their freshman year.

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[20] Or because "there was nothing better to do," although the differences between the two groups on this item were somewhat less (19 percent versus 24 percent).

These students entered college with somewhat lower self-reported high school grades and less confidence in their academic abilities. Thirty-eight percent of the nonenrolled reported that their average high school grade was a "C," compared with 26 percent of the enrolled group. They were half as likely to report an "A" average in high school (5 percent versus 11 percent). Only one-third rated themselves as above average on academic ability, compared with 46 percent of the enrolled group, and only 23 percent rated themselves as above average on math ability, compared with 32 percent of the enrolled group. Fifty-five percent of the nonenrolled agreed with the statement, "I am as skilled academically as the average applicant to this college," compared with 69 percent of the enrolled group.

Nonetheless, they were less likely to seek assistance at college. Fewer nonenrolled students reported that they sometimes or often talked with faculty about academic matters (66 versus 73 percent), met with their advisor concerning their academic plans (72 versus 81 percent), or participated in study groups with other students (63 versus 73 percent). They were somewhat less likely to be interested in free course tutoring if it was available (71 versus 77 percent). They were also more than twice as likely to report having academic difficulty their first semester in college—11 percent indicated their grades were below a "C" average, compared with 4 percent of the enrolled group.[21]

The pattern of less use of assistance appears to have already been established when the students entered college. Not only had they attended summer residential programs less frequently, but they had participated in various high school support programs at lower levels as well. For example, despite their lower high school grades, they were considerably less likely to have participated in tutoring in math (15 versus 24 percent), in English (14 versus 21 percent), or in any other subject (8 versus 13 percent). They were also less likely to have a participated in a range of cultural and recreational activities in high school.

When they entered college, the nonenrolled group was older and had often delayed entry. They also were more reliant on themselves and less reliant on their parents than other SSS freshman participants. Only a third described themselves as dependents on their parents' tax returns, compared with 47 percent of the enrolled group, and only 36 percent said that their parents were a major source of financial support, compared with 46 percent of the enrolled group.[22] Not surprisingly, they were considerably less likely to live away from home while attending college—only 23 percent say they were living over 50 miles from home, compared with 41 percent of the enrolled group.

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[21] On the other hand, they did not expect to have greater difficulty at the college than other students at higher rates than the enrolled group.

[22] Forty-eight percent of the nonenrolled said parental desire for them to attend college was not an important consideration in their decision, compared with 38 percent of the enrolled group.

Finally, although their educational goals were relatively high in an absolute sense and they seemed pleased with college, these nonenrolled students had somewhat less ambition than their enrolled counterparts. Eighty-five percent of the nonenrolled planned to obtain a bachelor's degree or more, compared with 93 percent of the enrolled group. Both groups expressed similar satisfaction with college, with 89 percent of the enrolled group and 86 percent of the nonenrolled group reporting that they liked college. Nonetheless, those in the nonenrolled group were less likely to describe themselves as having a strong drive to achieve, with 57 percent of the nonenrolled but 68 percent of the enrolled rating themselves as above average on this trait (compared with others their age). The nonenrolled students were also less somewhat likely to agree with the statement, "Once I start something, I finish it" (67 percent versus 74 percent).

So while members of the nonenrolled group began with somewhat greater educational deficits and were more likely to attend schools with higher noncompletion rates overall (i.e., 2-year colleges), they also began school with less planning and with less experience in seeking educational assistance. They maintained high credential goals (almost as high as those of SSS participants overall) but they appeared to have somewhat fewer academic, emotional and financial resources to meet those goals. They also had more responsibilities that were competing for their time.

Exhibit 5-1 summarizes the factors that were found to be related to third-year enrollment. We use the Tinto model of student decision to stay or leave college as an aid in organizing the information. From this summary we see that, even among a population of economically and educationally disadvantaged students, such factors as student ability and prior schooling, initial goals and aspirations, motivation to use services, parental support for college, institutional academic and social integration, and external commitments are important in differentiating those who were persisting from those who may not. Other factors usually related to persistence, such as family income and receiving financial aid, are less distinguishing among SSS participants, in part because most are clustered in the lower income categories and almost all have financial aid (83 percent had aid).

Keeping in mind the factors discussed in this chapter, in the next three chapters we specifically focus on the impact of SSS participation and receipt of services on college performance and retention.

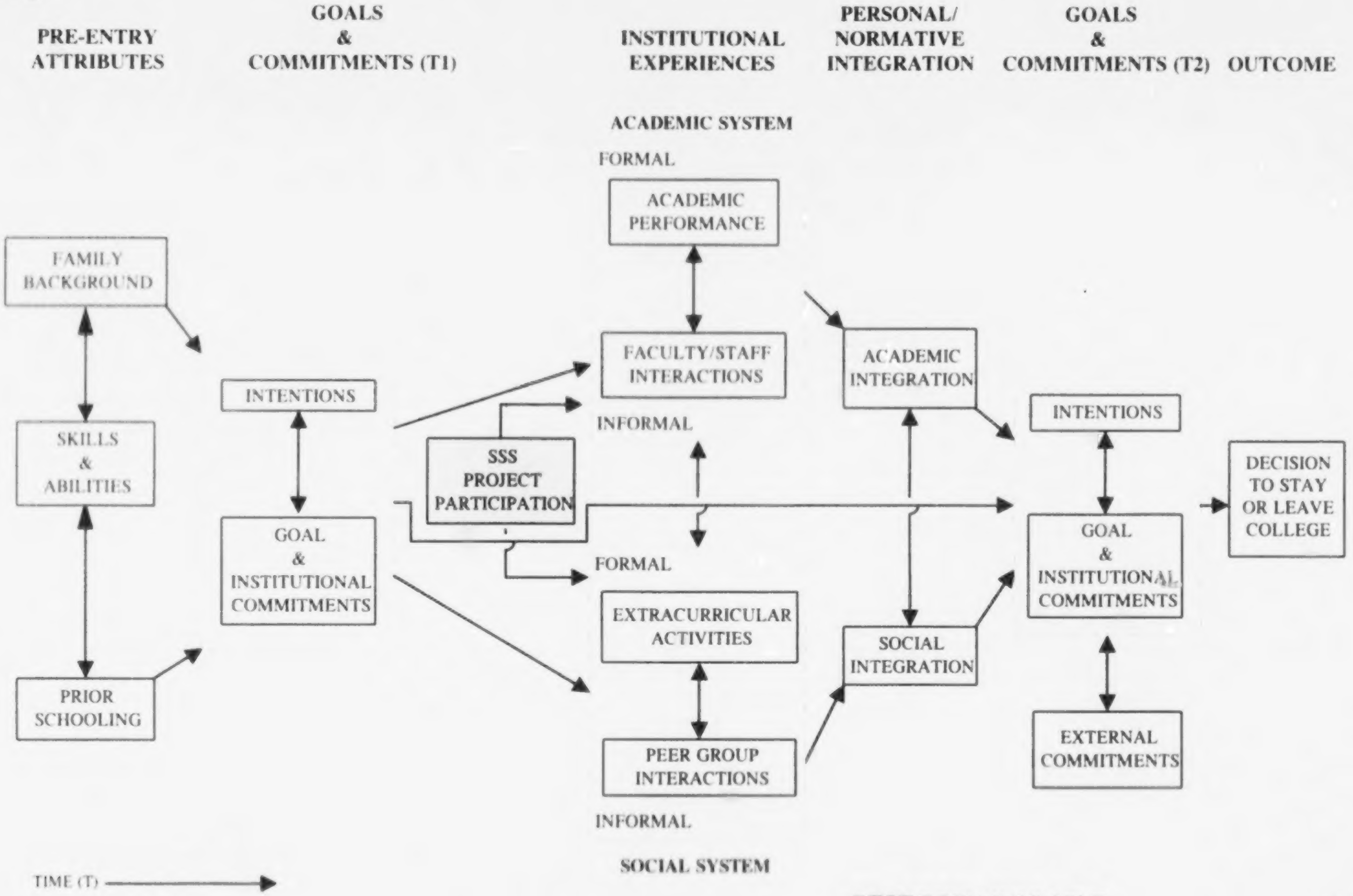


Exhibit 5-1

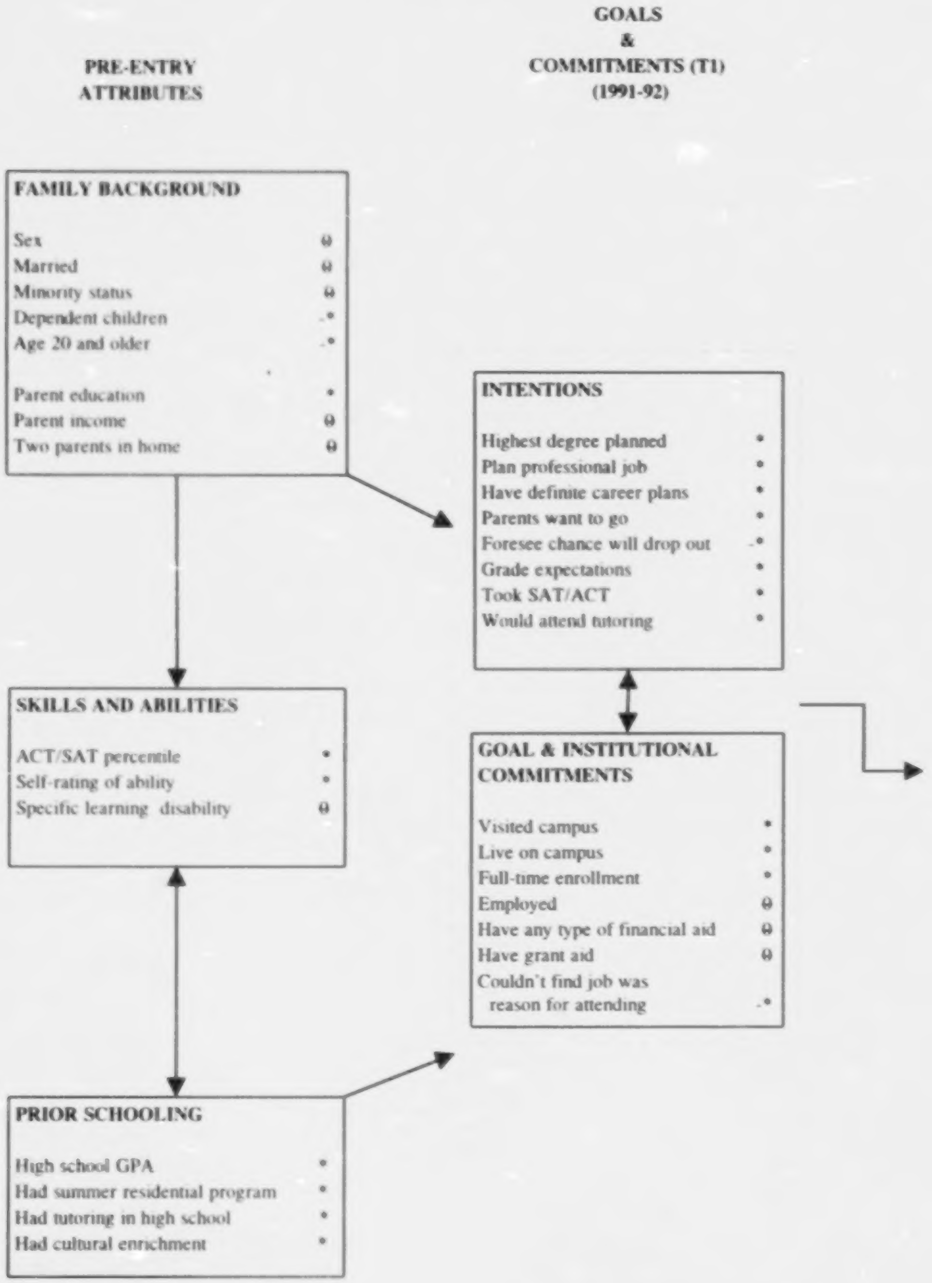
Summary of the relationship of various factors to retention for SSS students using adaptation of Tinto's model of decision to stay in or leave college

PRE-ENTRY ATTRIBUTES
GOALS & COMMITMENTS (T1)
INSTITUTIONAL EXPERIENCES
PERSONAL/ NORMATIVE INTEGRATION
GOALS & COMMITMENTS (T2)
OUTCOME
ACADEMIC SYSTEM
FORMAL
ACADEMIC PERFORMANCE
FAMILY BACKGROUND
FACULTY/STAFF INTERACTIONS
ACADEMIC INTEGRATION
INTENTIONS
INFORMAL
INTENTIONS
SKILLS & ABILITIES
SSS PROJECT PARTICIPATION
DECISION TO STAY OR LEAVE COLLEGE
GOAL & INSTITUTIONAL COMMITMENTS
GOAL & INSTITUTIONAL COMMITMENTS
FORMAL
EXTRACURRICULAR ACTIVITIES
SOCIAL INTEGRATION
PRIOR SCHOOLING
PEER GROUP INTERACTIONS
EXTERNAL COMMITMENTS
INFORMAL
SOCIAL SYSTEM
TIME (T)

BEST COPY AVAILABLE

Exhibit 5-1

Summary of the relationship of various factors to retention for SSS students using adaptation of Tinto's model of decision to stay in or leave college (Part I)



FAMILY BACKGROUND

Sex	θ
Married	θ
Minority status	θ
Dependent children	-*
Age 20 and older	-*
Parent education	*
Parent income	θ
Two parents in home	θ

SKILLS AND ABILITIES

ACT/SAT percentile	*
Self-rating of ability	*
Specific learning disability	θ

PRIOR SCHOOLING

High school GPA	*
Had summer residential program	*
Had tutoring in high school	*
Had cultural enrichment	*

INTENTIONS

Highest degree planned	*
Plan professional job	*
Have definite career plans	*
Parents want to go	*
Foresee chance will drop out	-*
Grade expectations	*
Took SAT/ACT	*
Would attend tutoring	*

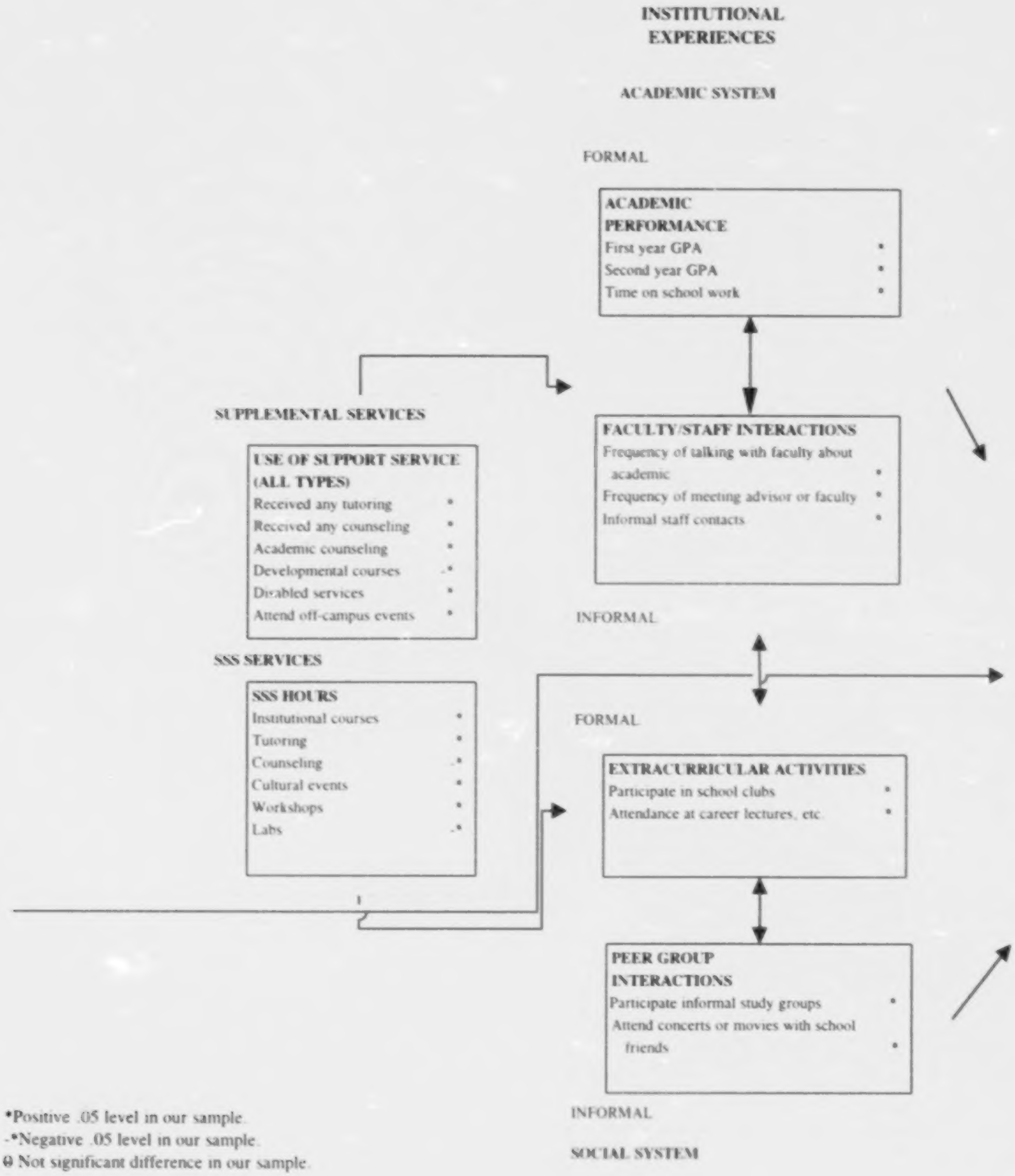
GOAL & INSTITUTIONAL COMMITMENTS

Visited campus	*
Live on campus	*
Full-time enrollment	*
Employed	θ
Have any type of financial aid	θ
Have grant aid	θ
Couldn't find job was reason for attending	-*

*Positive .05 level in our sample.
-*Negative .05 level in our sample.
θ No significant difference in our sample.

Exhibit 5-1
Summary of the relationship of various factors to retention for SSS students using adaptation of Tinto's model of decision to stay in or leave college (Part II)--continued

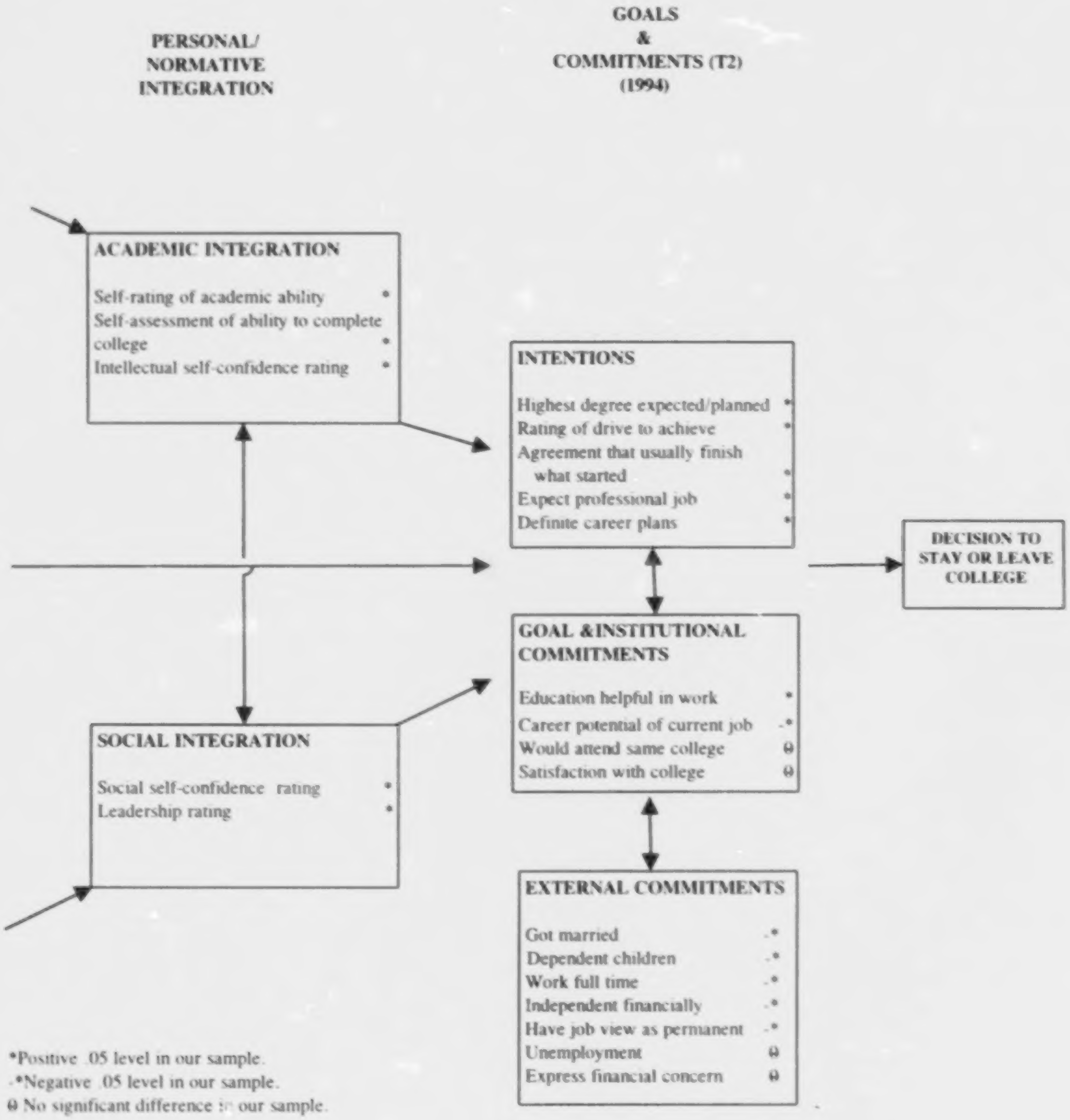
College Environment


INSTITUTIONAL EXPERIENCES
ACADEMIC SYSTEM
FORMAL
ACADEMIC PERFORMANCE
First year GPA •
Second year GPA •
Time on school work •
SUPPLEMENTAL SERVICES
FACULTY/STAFF INTERACTIONS
Frequency of talking with faculty about academic •
Frequency of meeting advisor or faculty •
Informal staff contacts •
USE OF SUPPORT SERVICE (ALL TYPES)
Received any tutoring •
Received any counseling •
Academic counseling •
Developmental courses -•
Disabled services •
Attend off-campus events •
INFORMAL
SSS SERVICES
SSS HOURS
Institutional courses •
Tutoring •
Counseling -•
Cultural events •
Workshops •
Labs -•
FORMAL
EXTRACURRICULAR ACTIVITIES
Participate in school clubs •
Attendance at career lectures, etc. •
PEER GROUP INTERACTIONS
Participate informal study groups •
Attend concerts or movies with school friends •
INFORMAL
SOCIAL SYSTEM

•Positive .05 level in our sample.
-•Negative .05 level in our sample.
θ Not significant difference in our sample.

Exhibit 5-1
Summary of the relationship of various factors to retention for SSS students using adaptation of Tinto's model of decision to stay in or leave college (Part III)--continued

Student Output


PERSONAL/
NORMATIVE
INTEGRATION
GOALS
&
COMMITMENTS (T2)
(1994)
ACADEMIC INTEGRATION
Self-rating of academic ability *
Self-assessment of ability to complete college *
Intellectual self-confidence rating *
SOCIAL INTEGRATION
Social self-confidence rating *
Leadership rating *
INTENTIONS
Highest degree expected/planned *
Rating of drive to achieve *
Agreement that usually finish what started *
Expect professional job *
Definite career plans *
GOAL & INSTITUTIONAL COMMITMENTS
Education helpful in work *
Career potential of current job -*
Would attend same college θ
Satisfaction with college θ
EXTERNAL COMMITMENTS
Got married -*
Dependent children -*
Work full time -*
Independent financially -*
Have job view as permanent -*
Unemployment θ
Express financial concern θ
DECISION TO STAY OR LEAVE COLLEGE

*Positive .05 level in our sample.
-*Negative .05 level in our sample.
θ No significant difference in our sample.

6. STUDY DESIGN FOR EXAMINING STUDENT OUTCOMES

HIGHLIGHTS

- Three measures of students' academic performance were chosen for evaluating the impact of SSS: students' grade point averages (GPAs) in college, total number of credits earned, and retention in higher education. In future years, additional variables will become available, with the most notable one being degree attainment.
- Using transcript data, the academic performance of about 2,900 freshman SSS participants was tracked over 3 years. Propensity scoring was used to select a comparison group of about 2,900 students with similar demographic characteristics who were also tracked over 3 years.
- Detailed information was collected about students' participation in SSS, including the number of hours of services received in each of nine categories: instructional courses, professional tutoring, peer tutoring, professional counseling, peer counseling, labs, workshops, cultural events, and services for the handicapped. Both SSS participants and the comparison group also provided self-reports about services they received.
- Because students in the comparison group were still relatively advantaged when compared with the SSS participants, additional statistical adjustments were used to correct for these differences. The variables that were chosen for the statistical adjustments were based on the analysis presented in chapter 5 and include students' demographic characteristics, academic background, and attitudes, and institutional characteristics of the schools they attended.
- Using regression analysis, statistical models were developed to examine the relationship between the SSS services that were received and students' academic performance. Multiple statistical perspectives were used and compared so that the findings would not be an artifact of choosing a single statistical approach.

- Regression coefficients were used to calculate the impact of SSS for each student based on the number of hours of services that each received. Summary statistics were then developed to describe the average impact of individual SSS services and of SSS overall.

LONGITUDINAL ANALYSIS

This study was designed as a longitudinal analysis of 2,900 SSS participants chosen when they first entered college and then tracked over time. Students were regularly contacted to obtain information about their attitudes, characteristics, and academic progress, and their academic transcripts were collected and summarized in order to measure their academic performance. At the time of this report, 3 years of data about the students are available; additional data will be collected in following years, allowing measures of students' success in obtaining higher education degrees. For this report, students' academic performance is measured through the GPAs they earned in college each year and over all 3 years combined, the number of credits they earned each year and over all 3 years, their retenfion at the same institution to both the second and third years, and their retention at any institution of higher education in the third year.

For several reasons, it was determined that a longitudinal analysis of college freshmen would be the most effective means of measuring the short-term and long-term effects of SSS participation. If students were sampled at a later point in their college enrollment, then little information would be available about their first years in college, except for information recorded on academic transcripts and information that students are able to remember and report. Also, since many students drop out of college before their second and third years, and since promoting retention in college is one of the major goals of SSS, a sample of non-freshmen potentially would be statistically biased by excluding those students who were not retained. Finally, an examination of SSS programs revealed that SSS services are primarily provided in the freshman year, and that there is little difference in the receipt of services after the freshman year; by selecting students as freshmen, detailed information could be collected about their participation in SSS services, which forms the primary basis for the analysis that follows.

We chose to look at the effects of SSS services on students' performance in each of the 3 years individually and cumulatively across all 3 years. Generally, given that SSS participation is typically greatest during the freshman year, one might expect that the greatest effect of SSS would also be found at that time, though it is also possible that some effects (perhaps especially for retention) may take more time to accumulate. By looking at each year individually as well as at all years in combination, both possibilities can be examined. Moreover, this approach also allows the examination of the persistence of benefits of SSS participation: if SSS does improve students' academic performance, is that effect limited to the specific courses and time period when those services are received, or are the students learning knowledge and study skills that will help their performance in later years as well?

THE COMPARISON GROUP OF NON-SSS STUDENTS

In order to measure the effects of SSS on students' academic performance, one needs some basis for knowing how the students would have performed if they had not been in SSS. It is not appropriate to compare SSS students to typical college students because the academic or economic disadvantages that are required for SSS eligibility are known to be negatively associated with students' academic performance. Depending on the degree to which SSS helps participants to overcome their disadvantages, they might be helped through their SSS participation without necessarily performing as well as "typical" students.

Method of Creation of Comparison Group

The study design included the selection of a comparison group of freshman students who were chosen to be as similar as possible to the SSS participants. The comparison group was chosen by using regression analysis to calculate propensity scores of students' likelihood of participation in SSS based on demographic data that were available from the colleges.[1] The derived formulas were then used to choose a comparison group at each institution of students whose propensity scores showed similar distributions. To lessen the risk that an institution might not have non-SSS students who were comparable to the SSS participants, the study also used propensity scores to select a comparison group of students from a similar institution that had no SSS programs. In this way, even if the SSS programs "skimmed" the most disadvantaged students, the study would include some comparison students for whom no such skimming was possible.[2]

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[1] The formulas that were used for calculating propensity scores varied from one institution to another because institutions differed in the amount of information that they were able to provide for use in the statistical model.

No constraints were placed on the comparison group in terms of whether they participated in other non-SSS services, since if the SSS students had not participated in SSS, one might expect that they would have received many of the same non-SSS services. However, both the SSS participants and the comparison group were asked in the student questionnaires to describe all of the services that they received so that the effects of these services could be measured.

Comparison with SSS Students

As shown in table 6-1, while the propensity scoring was effective in selecting students who were more like the SSS participants than typical students, the differences were only partially overcome.[3] For example, SSS students were less likely to be male (33 percent) than students in the comparison group (40 percent), even though they were more similar to the comparison group than to students overall (47 percent). Some of the strongest persisting differences were related to students' educational or economic disadvantages, as might be anticipated from the criteria for SSS eligibility. Thus, only 10 percent of the SSS students reported that their average grade in high school was an "A," compared with 11 to 17 percent of the comparison students and 24 percent overall; 35 percent had fathers with less than a high school education, compared with 17 to 20 percent in the comparison group and 12 percent overall; and 30 percent had household incomes of $10,000 or less, compared with 14 to 17 percent of the comparison students and 7 percent overall.

The primary reason the SSS students and the comparison group were not more similar appears to be the lack of adequate data for fully comparing the two groups of students. For example, some institutions did not have information about the race/ethnicity of their students or did not have information about the students' finances, especially for those who were not receiving assistance. The fewer the items that were available, the less powerful were the propensity models that were developed; most institutions were able to supply

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[2] However, some institutions only admitted certain types of students if they participated in SSS. These institutions by definition did not have comparable students outside of SSS. To the degree that the matching non-SSS institutions had similar admissions criteria, even those institutions might not have students with comparable disadvantages because without an SSS program to compensate for the students' deficiencies, those institutions might not accept such students on even a conditional basis.

[3] In a few cases, such as the mean SAT scores, the comparison group actually scored above the national average; this is probably due to differences in the populations being described by the statistics (e.g., the study focused on students attending college, not those who applied, and on full-time students rather than on all students).

Table 6-1
Comparison of SSS students with control group and all freshmen, by student characteristics

Student characteristic	SSS	Control		All freshmen
		SSS schools	Non-SSS	
Demographic data				
Percent male	33	40	40	47
Never married	81	87	86	71
Have dependent children	22	15	15	24
Percent white	42	50	55	80
Over 100 miles from home	18	19	24	36
Age 19 or under	75	79	70	92
Household income $10,000 or less	30	17	15	7
Other language besides English spoken at home	31	23	17	--
Understand English very well	71	88	83	--
Speak English very well	59	82	69	--
Write English very well	48	78	67	--
Read English very well	60	82	72	--
Parental information				
Lived with father/male guardian	72	77	75	--
Lived with mother/female guardian	94	96	97	--
Father was manager/proprietor	18	24	24	--
Mother in service occupation	51	39	36	--
Father had less than high school education	35	20	17	12
Mother had less than high school education	30	19	15	9
Academic information				
Have taken SAT or ACT	81	87	85	--
SAT Verbal	399	455	445	422
SAT Math	429	463	462	474
ACT Composite	18.8	20.2	20.4	21
"A" as average grade	10	11	17	24
Years of math	3.3	3.4	3.4	--
Took courses at other college	29	36	40	--
Credits earned at this institution	21.1	21.5	22.3	--
Full-time student	90	91	90	--
Work-study job	16	13	11	--
College finances				
Received financial aid	82	73	73	45
High school counselor helped assemble	26	19	19	--
College counselor helped assemble	27	26	16	--
Self-assembled	50	68	60	--
Listed as dependent by parents	43	62	64	--
Received assistance of $600 or more	27	43	48	--
Financing college is major concern	41	34	31	--
Attitudes				
BA/higher as highest planned degree (this col)	67	72	68	67
BA/higher highest planned at any college	91	95	95	90
Definitely able to complete college	71	79	80	--
Academic ability above average	43	59	57	54
Drive to achieve above average	65	72	73	67
Emotional health above average	58	67	71	55
Leadership ability above average	51	62	65	50
Mathematical ability above average	30	42	41	37
Physical health above average	57	74	73	56
Popularity above average	40	52	57	38
Intellectual self-confidence above average	57	71	71	51
Social self-confidence above average	56	66	66	45
Writing ability above average	38	56	54	40

--Data not available.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Service Record Analysis, 1991-92* only a limited amount of data. Another reason that it was sometimes difficult to select comparable non-SSS students is that at a few institutions case studies revealed that the SSS programs were so highly targeted that there were no comparable non-SSS students with similar characteristics; however, the number of SSS students at such institutions was sufficiently small as to have only a minor impact on the overall averages. Also, the students in the highly targeted programs were actually less likely to be disadvantaged than the other SSS students (e.g., 77 percent were white, compared with 35 percent of other SSS students), so that targeting was not the major source of the differences between the SSS and the comparison groups. Whatever the cause, there were systematic differences between the SSS participants and the comparison group, with the SSS participants being more disadvantaged. The analysis therefore required the use of statistical adjustments to correct for these differences (discussed below).

Table 6-1 also shows that there generally were only small differences between the comparison students based on whether they were at SSS or non-SSS institutions. Since statistical adjustments for the differences between SSS and non-SSS students are required in any case, and these adjustments can also compensate for these small differences between the two types of institutions, the distinction between the two comparison groups is unnecessary; therefore, this report combines both groups of comparison students into a single group for most analyses.

Use of Statistical Adjustments

Because the comparison group still might be anticipated to outperform the SSS students on academic measures, additional statistical adjustments were necessary. The use of statistical adjustments were also required for another reason: even among the pool of SSS participants, there was substantial variation in student characteristics that might reasonably be expected to affect the level of services that students use. For example, a student's high use of tutoring or counseling might reflect a high level of academic need, so that the use of SSS services could be negatively correlated with measures of academic performance.

In order to adjust for these differences in student characteristics, two steps were taken. First, the analysis pooled the student data across all of the participating institutions; in this way, even if comparable non-SSS students could not always be found at the same institution as a particular group of SSS students, students with similar characteristics could often be found at one or more of the other institutions. Second, multivariate regression models were used to statistically adjust for differences in student characteristics. Because the purpose was not to measure the effect of a specific student characteristic, but rather to adjust for the cumulative effect of many characteristics, a relatively large number of variables were used in the regression models. Specifically, a variable was included in the model if it was of theoretical interest (e.g., measures of SSS participation and eligibility) or it proved statistically significant at the 0.05 level. The list of variables that were included does not match perfectly with the variables that were found to be associated with retention in chapter 5; in some cases, two variables were sufficiently correlated with each other that even though both might be related to retention on a bivariate basis, once one variable was included in a multivariate model, the other variable provided little extra explanatory power and was not statistically significant.

Because the intention of the model was to statistically adjust for factors that might be related both to SSS participation and to students' GPAs or retention, a relatively comprehensive list of variables was included in the model. If the intention was to measure the specific effects of one of these factors, such a procedure might result in biased estimates. For this particular study, however, the goal of providing a complete adjustment was deemed more important.

MEASUREMENT ISSUES

Variability of SSS Services

One theoretical decision that has important implications for evaluating SSS is whether to treat SSS as a relatively uniform intervention into students' lives or as a set of services that varies tremendously from one institution to another, and from one student to another even within an institution. From the standpoint of policy evaluation, there is considerable value in stating an overall effect of the SSS program, and thus treating SSS as being relatively uniform. However, both our qualitative case studies and our quantitative data indicate that SSS services are not received in a uniform manner.

- SSS programs differed in their basic organization, with three different general types of programs: *dominant service* programs primarily focused on providing a single service, though other services might be provided through other campus offices or to only a limited number of SSS students; *all service* programs served as the only (or at least primary) provider of support services at the institution; and *home-based* programs provided a home base on campus that served the "whole student" by providing a broader range of services to facilitate the students' integration on the campus and by seeing that any needed supplemental services were provided.[4] Often home-based programs made special attempts to have group activities for the SSS students, such as cultural events or service projects.

- SSS programs also differed in the extent to which the SSS services were blended with other services on campus. In order to satisfy early federal requirements (up to 1992) for nonsupplanting and nonduplication, almost all of the programs had ways of maintaining their unique service and population serviced; still, some did this by coordination with other service providers and some by having a more separate service delivery model. SSS program regulations were later changed to allow a greater blending of services, but this was an important distinction at least at the start.

- SSS programs also differed greatly in the types and amount of services they provided. For example, some programs provided separate instructional courses (e.g., developmental courses) that were offered exclusively to SSS students, while others offered similar courses that made no distinction between SSS and non-SSS students. Figure 6-1 shows the percentage of SSS programs that provided each of nine SSS services to at least one freshman student in the sample.[5] While some services such as professional counseling and peer tutoring were almost universally available to students (with over 90 percent of the students at programs that provided the service), four of the nine services were offered by less than half of the programs.

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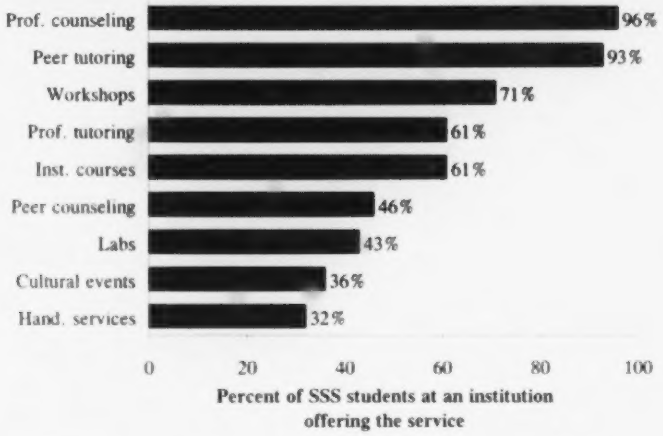
[4] These categories are not necessarily mutually exclusive. For this analysis, however, we chose to describe each program using only the single category that best described the program, rather than assigning multiple categories to a program. Further, because only three programs in our sample fit the *all service* category, and our initial investigation suggested that home-based programs deserved the closest analysis, we focus on the distinction between home-based programs and all other programs.

[5] In some programs, a service may have been available even though no sampled freshman had received the service. For example, the service might be offered only to nonfreshmen, or it might be such a specialized service (e.g., for handicapped students) that no sampled students used it during the study. The definition used here requires specifically that the service be available to the SSS freshmen in the sample, as measured by the fact that at least one such freshman received the service. Additional information about the nine services is provided in table 6-2.

Figure 6-1
Percent of students in SSS programs that provided each of nine SSS services



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Service Record Analysis, 1991-92.*

- SSS students differed greatly in their use of services even at a single institution. This is most obviously true of services offered to the handicapped, since relatively few students were eligible for such services, but it was also true of more general services such as peer tutoring: some SSS students received no services, others received only small amounts, and still others received large amounts. Figure 6-2 shows that no service was used by all students to whom it was theoretically available. For example, while 96 percent of all programs offered professional counseling to freshmen, only 82 percent of all the sampled freshmen in those programs received professional counseling.[6] In fact, only two services—professional counseling (82 percent) and workshops (62 percent)—were received by a majority of the students to whom they were available, while five of the nine services were received by less than a third of the students that might have received them. And only one service (professional counseling at 80 percent) was received by a majority of all SSS students.

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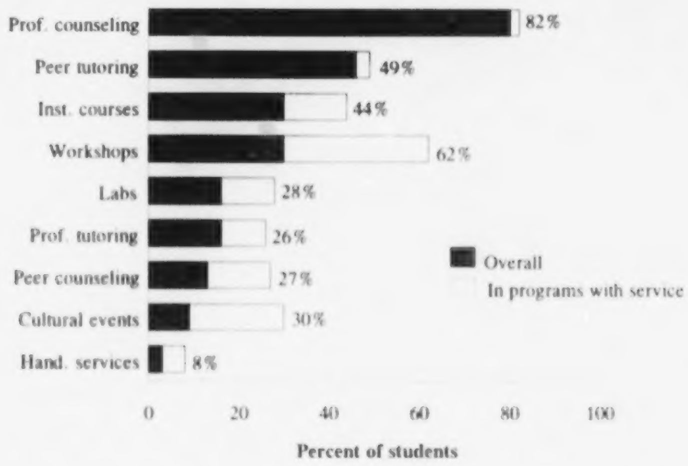
[6] A slightly lower number—80 percent—received professional counseling if one also includes SSS students who attended colleges that did not offer professional counseling. Typically, for services that were less widely offered than professional counseling, the gap between the two percentages is much greater.

Figure 6-2
Percent of SSS students receiving each of nine SSS services



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Service Record Analysis, 1991-92*

Because of this great variation in the availability and use of the SSS services, a measure of the impact of SSS can be misleading unless the variation is taken into account. The group of SSS students includes many who received very few services through SSS and thus who were not very different from the comparison group in their educational experiences. Also, if some SSS services are more effective than others (as suggested later in this report), then even students who appeared to receive many SSS services may not have received the services that were most valuable, so that their educational experiences again may not be meaningfully different from those of the comparison group.

An implication of these differences is that an attempt to determine the "average" effect of SSS will result in an inadequate description of the variation in effects among different students. Since there are many students who participate in SSS in only a minimal way (9 percent had only one service contact over the entire freshman year, 7 percent received less than 1 hour of total services in the first year, and 22 percent received between 1 and 5 hours), the general effect is to understate the effect of SSS on those with whom it is most involved. The financial costs connected with SSS are most associated with students who are heavy users of the services, while the "average" effect would instead give a substantial weight to students who neither required much resources nor would be expected to feel much benefit.

This analysis therefore differentiates between SSS students based on the types of programs in which they were involved (home-based versus other, and blended versus separate), the types of services they received, and the number of hours of services they received. As an alternative, we also examined the use of a single summary measure of SSS participation by summing each student's participation across all nine services. This has the advantage of simplifying the measurement of SSS participation while still allowing for variations in the use of services; in fact, it performed better (in terms of the variance explained) than a single dichotomous measure of SSS participation. However, the estimates that are presented in this paper suggest that SSS services are not equal in their effects, so that combining them together was not appropriate. Further, the models showed greater explanatory power when the services were treated separately.

Measurement of SSS and Other Student Services

The measures of SSS services were based on service records provided by the cooperating institutions that indicated the number of minutes (here converted to hours) of students' participation in each service. Data were collected for nine different categories of services: instructional courses, professional tutoring, peer tutoring, professional counseling, peer counseling, labs, workshops, cultural events, and services to the handicapped. Additionally, data were collected using a number of subcategories of these services; for example, the category of peer tutoring was subdivided into general peer tutoring and tutoring in each of five different specific subject areas (English, mathematics, science, social science, and general). These subcategories and the percentage of SSS students using each type of service are presented in table 6-2. Some analyses were conducted using selected subcategories to determine whether the general categories or subcategories were more useful. The general categories are used in this report for simplicity and because the subcategories provided no useful additional information; generally the main effect of using the subcategories was to reduce the statistical significance of the findings, probably because of the reduced number of students getting a service when such detailed subcategories were used.

In order to properly measure the effects of the SSS services, it was judged necessary to also measure students' use of non-SSS services because SSS programs often referred students to non-SSS services, and because students often could receive equivalent services without participating in SSS. For example, if two students had equivalent abilities/backgrounds and one student benefited from SSS services while the other benefited from equivalent non-SSS services, an analysis that excluded the non-SSS services might falsely conclude that SSS had no impact because there was no measurable difference in outcomes between the two students. In fact, they each may have benefited compared with how they would have performed with no services. Similarly, because SSS students may receive non-SSS services, even an analysis that was limited to SSS participants would require the measurement of non-SSS

Table 6-2
List of SSS services

Service category and description	Examples
Instructional courses only includes courses that were offered exclusively to SSS students	study skills (16% of SSS students) writing (12%) developmental mathematics (11%) reading (7%) developmental English (4%) English proficiency (1%)
Professional tutoring all tutors were paid, but this group was distinguished by the use of graduate students or faculty/staff to perform the tutoring	English (8%) general tutoring (3%) mathematics (3%) science (1%)
Peer tutoring performed by undergraduates	mathematics (21%) English (17%) science (9%) social sciences (4%) general tutoring (3%)
Professional counseling performed by graduate students or faculty/staff	academic counseling/advising (60%) personal counseling (20%) financial aid counseling (19%) career counseling (8%)
Peer counseling performed by undergraduates	academic counseling/advising (10%) personal counseling (4%) financial aid counseling (1%)
Labs	mathematics (7%) writing (4%) reading (3%) English (2%).
Workshops	orientation to college (18%) study skills (8%) career guidance (3%)
Cultural events	concerts (3%) museums (1%) lectures (1%) other events (4%)
Handicapped services	counseling (2%) note takers (1%)

services. Otherwise, one SSS student could benefit from an SSS service while another SSS student benefited from an equivalent non-SSS service, and the SSS service would falsely appear to show no impact.

Unfortunately, it was not possible to collect data about non-SSS services with the same precision as for SSS services, partly because of the wide range of sources of services. Instead, this study used students' self-reports of the services they had received, which was typically a dichotomous (yes/no) measure. (An exception is for tutoring and counseling, where the students gave more detailed categorical responses—e.g., weekly, monthly—that were converted to numeric estimates.) The dichotomous measures were not expected to perform as well as the more precise measures of the SSS services (since they lumped together students receiving high and low amounts of the services), and an analysis confirmed that they did not. For example, the measure of non-SSS tutoring showed statistically significant effects on GPA when used as a continuous measure, but not when it was recoded as a dichotomous variable. Thus, this analysis may understate the value of non-SSS services. Nevertheless, the statistical results for the non-SSS services were consistent with those for the SSS services: for example, the same two SSS services that showed a positive impact on students' first-year GPAs (tutoring and cultural events) also showed a positive and statistically significant impact when provided as non-SSS services. The primary difference between the two groups of measures is that the dichotomous measure of non-SSS services for the physically handicapped showed positive and statistically significant effects on students' first-year GPAs, though the comparable (and continuous) SSS measure was not statistically significant. This difference in significance was probably based on the number of cases involved since a greater number of students received such services through non-SSS sources than through SSS. Given the consistency of the findings for SSS and non-SSS services, it does not seem that the differences in metrics had a harmful effect. Further, the primary goal of including the measures of non-SSS services was not to precisely measure their impact, but to obtain an overall measure of the mean impact of each service so that the regression intercept (in combination with the other demographic variables) reflected the estimated result if a student received no services; this allowed a better estimate of whether SSS students were helped.

For another check on the implications of using continuous measures of SSS services and dichotomous measures of non-SSS services, the first-year GPA analysis was rerun with the SSS measures recoded as dichotomous variables. Generally this did not change the findings except for three variables. As noted, the formerly continuous measure of the number of non-SSS tutoring sessions became statistically insignificant when recoded to a dichotomous variable, suggesting that the continuous variable worked better in this case.

Among the SSS service variables, two additional variables (professional tutoring and instructional courses) became statistically *significant* when recoded as dichotomous variables; however, the coefficient for instructional courses was negative (it was positive and statistically insignificant using the original measure), and professional tutoring had been a marginal variable that was close to statistical significance.[7] Thus, the continuous measures seem preferable; further, the fundamental findings were not dependent on the way the variables were created, and no bias was created in terms of emphasizing the importance of SSS services over other services.

The measurement issue is further complicated by the fact that students' self-reports did not indicate whether the services they received were provided through SSS or through some other mechanism. One alternative was to leave the students' self-reports unadjusted, which would risk double-counting an SSS service as being provided both through SSS and also outside of SSS), while another alternative was to assume that whenever a student received an SSS service, the student self-report must be referring to that SSS service and not to some alternative source. The case studies suggested that it is rare for a student to receive the same service through both SSS and outside of SSS; rather, when students receive both SSS and non-SSS services, the non-SSS services are typically in areas where no comparable SSS services are provided at the institution. Thus, the second alternative was judged the most reasonable, and student self-reports were adjusted to eliminate any double-counting of services.[8]

The Use of Multiple Measures of SSS Services

By using multiple measures of SSS services, there is a risk that if two services were highly correlated, their joint inclusion might result in increased standard errors or a mismeasurement of the relative impacts of the services. To check whether the use of multiple measures simultaneously had an impact on the results, each of the nine measures of SSS services was also run separately in regressions to estimate the impact of SSS on students' first-year GPAs. This procedure had no impact on which variables showed positive and statistically significant results; the only important difference was that one variable (professional counseling) that otherwise showed negative and statistically significant results was still negative but no longer statistically significant. There are probably two explanations for this. First, because SSS overall had a positive effect and no other variable was included in the equation to measure that effect, the variable for SSS professional counseling picked up some of that positive effect, canceling out some of the negative association between the need for counseling and students' GPAs. Second, when professional counseling alone was in the model, the remaining variables in the regression equation were better able to adjust for the differences between students who received counseling and those who did not, while when all nine SSS services were included together, the coefficients that were appropriate for most SSS services were not as appropriate for professional counseling. The primary change was in the intercept, suggesting that students who received professional counseling started with some type of disadvantage relative to other SSS students that could not be captured through the other measures of student characteristics. Though the negative coefficient for professional counseling is undesirable (in the sense that some aspect of students' performance is not being properly explained), this finding best supports the conclusion that a more complex model is needed that more fully captures the differences between students who received counseling and those who did not, not that there is a problem with including individual measures of each SSS service.

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[7] A negative but statistically significant coefficient should be considered an indicator that the model was not working well. A more extensive discussion of this issue is provided later in this chapter.

[8] One reviewer had the concern that the combination of using a highly precise measure of SSS services with a dichotomous measure of non-SSS services would result in the effects of non-SSS services being absorbed by the more precise SSS measures. However, the decision to adjust students' self-reports to avoid double-counting means that only one measure of a particular type of service can be nonzero for any given student. There is a risk that the measurement of the SSS impact will be overstated if a student received both an SSS service and an equivalent non-SSS service, but the likelihood of such an occurrence is so low that this is not a serious issue.

Measures of Student Outcomes

Three measures of student outcomes were developed for this report: students' GPAs, the total number of credits earned, and their retention to the second or third year. Following is a more detailed description of the derivation of these measures.

Students' GPAs were calculated for each year individually and for the first 3 years combined using the transcript data. In order to standardize the grading system, all grades were converted to a standard four-point scale, with an increment of 0.3 used for pluses and minuses.[9] The converted numeric score was multiplied by the number of credits attempted in order to compute a weighted GPA. Only courses taken at the college where the students were first sampled were included in the calculation; transfer courses, including courses taken after a student transferred to another institution, were excluded.

The number of credits earned was based only on courses taken for regular credit. Institutions sometimes differed in the way that credits were assigned, with developmental courses counting for regular credit at some institutions and not at others. Each institution's definition was accepted, without attempting to convert all credits to a similar coding scheme. For those colleges that used a quarter system, the credits earned were multiplied by two-thirds in order to create a standardized semester-based measure.

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[9] E.g., "A"=4.0 and "C+"=2.3.

Retention at the same institution was measured by the presence of a GPA for that year at the sampled institution, without setting a minimum number of courses. Thus, part-time students were counted as retained, as were students who enrolled only for a single term in the academic year. Retention to the third year at any institution of higher education was measured through students' self-reports, except that students were counted as retained if their transcript data indicated they were enrolled even if the students reported they were not enrolled or the students did not complete the student questionnaire.[10]

Missing Data

In general, if a questionnaire item had substantial missing data, then a two-step procedure was followed: the missing values were set to zero, and a new dummy variable was set to one if there had been missing values, and zero otherwise. In this way, the cases could be retained in the analysis, while the dummy variable summarizes the degree to which the cases with missing data differed from the overall mean.

A special situation occurred when structural equations models were used to estimate the effect of SSS on retention to the third year. Second-year GPAs were missing for roughly 30 percent of the students (i.e., because the student at least temporarily left higher education or transferred, and the student either did not provide any information or did not provide sufficient information for the transfer grades to be obtained), but the previous solution could not be used because the second-year GPA was used as a dependent variable in one of the equations. Rather than remove these students from the analysis, second-year GPAs were instead imputed by first introducing the first-year GPAs, and then iteratively using regression equations to calculate an estimated second-year GPA.

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[10] There would be some risk of bias if retention *rates* were calculated through this mechanism, because students who remained at the same institution would be counted as enrolled, but students who transferred to another institution might not be detected (without the student's report that he/she had attended another college, the transcript would not have been collected). Also, the imputation was only in one direction; no students were coded as not enrolled if we lacked transcript records to confirm the enrollment. However, the focus of the regression analysis was not on calculating retention rates, which already were discussed in chapter 5, but to calculate the incremental effect of SSS on retention. Assuming that the effects of SSS did not vary greatly from one student to another (except based on the differing amounts of services that each received, which was included in the model), this recoding of data was helpful by increasing the accuracy of the data and increasing the number of cases available for analysis.

Without the use of these additional data, the structural equations model could not be estimated.[11]

DEVELOPMENT OF THE STATISTICAL MODELS

In this section, we describe the four types of statistical models that were used in the outcomes analysis, and two alternative models that were also considered. A later section discusses how the models were interpreted.

Choice of Statistical Techniques

At times, relatively complex statistical techniques were required to solve some of the methodological issues that appeared in this study. Because of the possibility that the choice of a particular methodological approach might be responsible for the research findings, we chose to examine each student outcome from multiple statistical perspectives—at the least, by using multiple regression to look both for overall effects and for effects associated with particular SSS services, but also when analyzing retention by using logistic regression, changes in the model to allow for indirect effects of SSS through its effects on college GPAs, and the use of structural equations.

The use of multiple statistical perspectives creates both organizational and analytic difficulties. If each approach is discussed individually, the discussion of student outcomes would become highly redundant, sometimes repeatedly asking the same research question in several different ways. Additionally, the reader is left with the difficulty of not knowing which approach to believe: should the reader trust each finding as it is presented, or hold all judgments in abeyance, not knowing what a later set of findings might show? If two findings conflict, which should be trusted? In general, we believe there is a "best" approach, but presenting only that approach would leave readers in doubt about how changes in the methodology might change the research findings. Thus, chapter 7 will present the findings from the multiple approaches in summary fashion, so that the results of each approach can be easily compared. A benefit of choosing this summary approach is that the various methodologies are all highly consistent: some are more sensitive at measuring all effects associated with SSS, but the general consistency among the different approaches helps to reinforce the trustworthiness of the findings. In this section, we present an overview of the various methodologies and the reasons for using each one.

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[11] However, the results of logistic regression models that omitted second-year GPAs (as an alternative way of handling indirect effects of SSS through GPAs) were consistent with the structural equations models, so the results presented here do not appear to be an artifact of the imputation process.

Tests of overall effects. From the perspective of a policymaker, the most useful finding is typically the bottom-line impact of the program in question. The simplest way of producing such a bottom-line finding is by treating SSS as being relatively uniform in its application, and measuring SSS participation though a simple dichotomous measure: either the student is an SSS participant, or he/she is not. We argue in the section on variability of SSS services that this is not the best approach: it mixes together students who were highly involved in SSS with students who were barely different in their participation from the non-SSS comparison group, when it is not realistic to expect both students to experience the same effects. Further, this approach ignores how the resources within SSS are distributed; the heavy users of SSS are also the ones requiring the greatest resources, so the costs of SSS are largely associated with one group, while the effects would be measured by a much larger and very different group. Our findings will show that this approach is the least likely to successfully measure the impact of SSS, but we include it in the chapter 7 tables for completeness.

Tests of individual SSS services. The analysis of students' college GPAs and credits earned is based on multiple regressions in which each of nine SSS services was measured separately, along with two variables measuring how SSS programs were organized: whether they were home based, and whether the SSS services were blended with other non-SSS services. The complete regression models containing all 11 of these SSS variables are presented in tables at the end of chapter 7; for simplicity, the analysis generally focuses on those services that showed positive and statistically significant effects on student outcomes. Because a unitary measure did not seem appropriate or effective, the individual SSS variables were also combined to estimate an overall net effect of the SSS program. This procedure is described in greater detail in the section on the interpretation of the models.

Logistic regression. While ordinary least squares (OLS) regression analysis is an appropriate technique for examining students' GPAs and the number of credits earned, it is not as appropriate for analyzing retention, which is limited to only two values (retained or not retained, while the other two outcome measures can fall anywhere within a continuum of possible values). Much of this analysis will instead use logistic regression.[12] As a result, the coefficients have a somewhat different interpretation than do regression coefficients; they are not as directly interpretable, but rather can be transformed to reflect the odds ratio of a student's probability of retention. For example, suppose that a student would normally have a probability of 60 percent of being retained until the next year. This probability might be expressed as an odds (60 percent versus 40 percent, or 60/40 = 1.5). If the logistic regression indicates that the receipt of an SSS service might double the odds (i.e., if the odds ratio is 2), then the student's estimated new probability of retention (given the receipt of the service) would be 75 percent (i.e., the odds would be doubled from 1.5 to 3, and the probability distribution that would produce odds equal to 3 is 75 percent versus 25 percent). Thus, the amount by which students' probability of retention is increased will depend upon the original predicted retention rates; if the students are very unlikely to be retained, then even a doubling of the (low) probability will still result in a low number, while if the students are equally likely to be retained or not retained, the same odds ratio would be associated with a much larger change in the probability of retention. To estimate the impact of SSS, one therefore needs to know not only the odds ratio, but also at least a rough approximation of the students' probability of retention. To simplify the discussion, this analysis often inserts a base retention rate into the calculation, so that it will easier to judge the magnitude of the change in probability. The retention rates that were used are 66 percent for retention to the second year at the same institution, 50 percent for retention to the third year at the same institution, and 75 percent for retention to the third year at any institution.[13]

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[12] However, Dey and Astin suggest that OLS regression and logistic regression typically produce similar results for studying retention, though the coefficients should be interpreted differently. Thus, the analyses here will not be limited to logistic regression if a particular statistical test is desired that is not available or meaningful with logistic regression. See Eric L. Dey and Alexander W. Astin. "Statistical Alternatives for Studying College Student Retention: A Comparative Analysis of Logit, Probit, and Linear Regression," *Research in Higher Education*, Vol. 34, No. 5, 1993, pp. 569-581

Structural equations models. The models that are used to estimate the impact of SSS on retention include a measure of students' college GPAs. This decision was made both because the GPAs provide a general indicator of the students' academic performance, and because students might specifically use their GPAs as a factor when deciding to whether to continue in college. Further, a comparison of separate regression equations with and without students' GPAs shows that the addition of the GPAs adds

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[13] The choice of the base retention rate has no effect on the statistical significance of the findings; it only affects how the coefficients are interpreted in terms of the size of the SSS impact. Further, even when interpreting the size of the SSS impact, the choice of the base retention rate does not have much effect as long as the alternatives are all relatively close to each other, as was the case here. Only a rough approximation is needed, especially given the low odds ratios appearing in this report (no higher than 1.5 for the SSS variables). For example, if the odds ratio was 1.5, any base retention rate from 0.34 to 0.57 would produce an estimate of a 10 percent increase in retention, and any base retention rate from 0.66 to 0.71 would produce an estimated increase of 8 percent. If the odds ratio was 1.2, any base retention rate from 0.43 to 0.53 would produce an estimated increase of 5 percent, and any base retention rate from 0.54 to 0.72 would produce an estimated increase of 4 percent. The base retention rates were chosen based on the observed retention rates of the SSS students and the comparison group.

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considerably to the predictive power of the model.[14] On the other hand, students' GPAs also appear to be affected by their participation in SSS. If students' GPAs are included in the regression model, the variables that are intended to measure the effect of SSS may actually only measure the residual effect after the influence of SSS through students' GPAs is removed.

We experimented with several ways of handling this potential difficulty. First, we examined whether we could measure an effect from SSS while also including students' GPAs; we found a positive effect of SSS on retention, but some of the SSS services that were specifically found to affect GPA did not show a statistically significant effect on retention. While it is reasonable that different services might have different effects on GPA and retention, another possibility is that the effect of these services was already being captured through the inclusion of the students' GPAs, and that this was the reason for the lack of statistically significant findings. Second, we estimated regression models that were equivalent except that students' college GPAs were excluded; these models showed less statistical power, but some SSS variables that previously showed statistically significant effects on GPAs now also showed statistically significant effects on retention. Thus, this set of equations supported the hypothesis that the inclusion of students' GPAs resulted in an underestimation of the effects of SSS. Finally, in order to enhance the power of the statistical models while measuring both the direct and indirect effects of SSS on retention, we developed a set of structural equations models.[15] The prediction of students' GPAs was split into two parts: a latent variable equation estimated the base GPA that might be expected without the receipt of SSS services, while a manifest variable equation estimated the added impact of SSS (or comparable services) on students' GPAs. In a manifest variable equation to predict retention, the latent variable (i.e., the base GPA) was used in place of the actual GPA, so that any indirect effects of SSS through GPA could be captured through the variables measuring SSS participation rather than through the measure of GPA. This model confirmed that SSS affected retention both directly and indirectly through its effect on GPA. A test of the covariances showed a considerable reduction in the chi-square with the use of a covariance statement, indicating that the covariance constraints in the structural equations model were beneficial. Thus, the structural equations model appears to provide the best estimates of the impact of SSS. For completeness, all three types of models are presented in chapter 7 so that the reader may see how the estimates are affected by the choice of models.

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[14] For example, using logistic regression to predict retention to the third year at the same institution, 87 percent of the predicted probabilities were concordant with the observed retention when the college GPA was included and 68 percent, when it was not.

[15] Unfortunately, the software that we used for structural equations did not provide for the option of logistic regression. However, other studies have shown that logistic regression and ordinary least squares produce roughly the same results, though they are interpreted differently. See Dey and Astin, op. cit. (1993).

Alternative Models

Besides the models discussed above, two additional types of models were considered for examining the effect of SSS. These were models that looked for differences in the impact of SSS based on institutional type and the possible use of propensity scores as an alternative to the measures of individual SSS services.

Differences by institution type. One of the questions this study examined is whether the effects of SSS participation varied depending on the institution type (2-year college, 4-year college, or doctorate-granting institution). At the simplest level, the analysis found that all students' grades on average were 0.15 higher at 2-year colleges than at other institutions, and that retention was greatest at doctorate-granting institutions and least at 2-year colleges, so variables to account for these institutional differences were included in the model. However, these differences do not mean that SSS affected students differently depending on the institutional type: in fact, even if one institutional type was less likely to have home-based or blended programs, or if it offered a different mix of services, these differences would be accounted for by the regression models that were used, and would not require the use of separate models (or interaction terms) for each institutional type.

It is also possible that there may be interactive effects between SSS participation, so that SSS (or some types of SSS services or organizational structures) has different effects depending on the institution type. From a theoretical perspective, one might expect the differences to be greatest in terms of how SSS programs are organized; since one of the characteristics of a 2-year college is that there is generally less total immersion in the academic environment (e.g., fewer students live on campus, and fewer students are full time), one might expect the decision to create a home-based environment might have different effects at a 2-year institution than at other institutions. On the other hand, there is less reason that a specific service such as tutoring would vary in its effects from one type of institution to another; the effects might well vary depending on the characteristics of the skills of the tutor and the student's motivation and abilities, but the institution type seems less likely to make a difference.

To examine whether the impact of SSS varied from one type of institution to another, separate regressions were run for each institutional type. Because 59 percent of the SSS students in the sample were at 4-year colleges, only a relatively small number of students were available from 2-year and doctorate-granting institutions; therefore, the SSS data provide only a limited ability to examine differences by institution type. Generally, the primary difference was that results that were statistically significant for 4-year colleges were often not significant for 2-year colleges and doctorate-granting institutions (whether for SSS services or other variables such as student characteristics), but this difference can probably be attributed to the differences in the number of cases available for analysis. For example, home-based programs were relatively uncommon at 2-year colleges (only 12 percent of the SSS students were in such institutions, compared with 67 to 69 percent at 4-year and doctorate-granting institutions), making it difficult to estimate how the effects might have differed.

The analysis did provide limited evidence that SSS effects were consistent across institution types; though the grading scale for 2-year colleges was higher than at other institutions, the estimated impact of SSS participation was roughly the same at all three types of institutions (0.1). The estimated impact was not statistically significant at 2-year colleges, but this may be a result of the small number of cases rather than a different effect of SSS participation. Similarly, SSS had relatively consistent effects on retention at each of the three types of institutions. The retention rate was highest at doctorate-granting institutions and lowest at 2-year institutions, but the estimated impact of SSS on retention was roughly the same. (Only the impact for 4-year institutions was statistically significant, but the differences in statistical significance may be a result of the differing numbers of cases rather than to SSS having a systematically different effect on retention at different types of institutions.) Thus, while the data provided only a limited ability to examine data on 2-year and doctorate-granting institutions separately, it appears reasonable to consider institution type as being important with respect to the absolute GPA level or retention rate but not with respect to the impact of SSS.

For similar reasons, this statistical analysis does not focus on individual programs at specific institutions. The number of sampled students at any individual institution would be quite small, so that it would be difficult to establish statistical significance for any relationship. Further, to the degree that the important differences among institutions are reflected in their organization type (home-based or other, and blended or other) or in the amounts and types of services they provide, those features are already included in the statistical models, and further differentiation by institution is unnecessary. It is possible that some institutions perform certain services more effectively than other institutions (e.g., through better training or quality control), but such differences are better examined through case studies than through a statistical analysis.

Propensity scores. Propensity scores are designed to model the probability of a student's participation in SSS based upon other information that is known about the student. They were used in the original sample design as a way of maximizing the similarities between the group of SSS participants and the comparison group of nonparticipants; propensity scores were first calculated for SSS participants, and then students with similar scores were chosen for the comparison group. Though this process was not completely successful (primarily because of the limited amount of data that were available at the time of sampling), it resulted in the selection of a comparison group that was considerably more similar to SSS participants than a random sample of all freshmen would have been.

Propensity scores can also be used for evaluating program effects, and for some types of analyses the modeling of participation may be more useful than a more direct modeling of outcomes based upon participation. For example, if the only measure of SSS participation were a single dichotomous variable, one might reasonably question whether students with low levels of participation were greatly different from those who did not participate; a model that instead used propensity scores might give these students relatively low propensity scores among SSS participants, while more active SSS participants might have higher scores. This may help to differentiate those students who most benefit through SSS participation from students who are only marginally involved and experience only marginal benefits.

A propensity analysis is less appropriate for this evaluation than for some other studies for two main reasons. First, because propensity scores were used to select the original comparison group, much of the variation in students' propensity to participate has been removed, and the continued use of propensity scores is no longer as useful for discriminating among students. Second, because this study obtained highly detailed measures of student participation, propensity scores are not needed to differentiate among the students, and in fact are less accurate than these detailed measures.

To verify that the findings in this report are not dependent on a single analytic approach, revised propensity scores were calculated for all sampled students using the student baseline questionnaire data (which were much more extensive than the data that were available at the time of sampling). These analyses confirmed the basic findings of this report: adjusting for student differences, SSS participants performed better than expected in terms of their first-year college GPAs and their retention to the same school in the second year. The participation effect estimates were larger than those based on a simple dichotomous measure of participation in SSS, indicating that it is desirable to differentiate among the students in some way. However, models that included measures of participation in the nine specified categories were more successful than those based on propensity scores alone, suggesting that the use of propensity scores was not as useful as these more detailed measures of participation.

INTERPRETATION OF MODELS

The chapter 7 appendix tables that present the regression results are both complex and repetitive: they include a large number of alternative models, numerous variables to adjust for student and institutional characteristics, and separate regressions for each of the 3 years of the study and for all 3 years combined. To simplify the presentation of the material, chapter 7 provides three summary tables to show which models, services, and program characteristics exhibit positive and statistically significant effects for SSS and to translate the regression coefficients into summary measures of the estimated effects of SSS. The statistics that were considered the best estimates are further highlighted by also being presented in a set of six graphics.

This section discusses how the summary measures of the effects of SSS were derived, and how the occasional appearance of negative but statistically significant regression coefficients should be interpreted.

Translation of Coefficients into Estimated Effects

The regression coefficients for SSS services that appear in the chapter 7 appendix tables may be interpreted as the average change in the student outcome that is associated with each hour of service received.[16] However, since SSS students varied greatly in the amount of services received, the actual impact of the SSS programs cannot be determined from those statistics alone. To provide a better summary measure of the impact of SSS, those coefficients that were positive and statistically significant were multiplied by the actual hours of services that each student received, and the mean among all students was then calculated.[17] This procedure was conducted both for each individual service that was statistically significant and for the sum of all statistically significant services that each student received. The latter statistic, labeled "total program effect" in this report, can be viewed as a single summary statistic that describes the total impact of the SSS program when all services are combined together.

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[16] The coefficients for the logistic regressions are interpreted somewhat differently and reflect changes in the odds ratio that are associated with each hour of service. Odds ratios are discussed in greater detail earlier in this chapter.

[17] In the case of home-based and blended programs, the coefficient was multiplied by one if a student was in that type of program, and by zero if the student was in a different type of program.

Typically, the above calculation was performed for two groups of students. First, in order to provide an overall measure of the impact of SSS, the calculation was performed over all SSS students in the sample, even if a particular student did not participate in any services that showed statistically significant effects. This is the most useful statistic if one wishes to describe the total impact of SSS as a national program; however, since many SSS students participate in only a minimal way, this statistic does not necessarily describe the impact on those students most responsible for using SSS resources. Further, especially since some of the statistically significant services were not even available to many SSS students, the overall statistic fails to indicate the impact that might be produced if SSS were restructured to make greater use of services that are shown to be effective. For these reasons, the calculation was also performed only for students who received statistically significant services (e.g., only for students receiving peer tutoring, or, for the measurement of the "overall program effect," only for students receiving at least one statistically significant service). This latter statistic is a better measure of the value of a specific service, though it does not show the national impact of the service.

Negative Regression Coefficients

For some models, and particularly using the measure of the amount of SSS professional counseling received by each student, one or more regression coefficients for the SSS services were negative but statistically significant. While it seems reasonable that some SSS services might be ineffective and show no relationship to student outcomes, it seems much less reasonable that a service was actually detrimental to students; a more likely explanation is some unmeasured variable (e.g., some academic deficiency) was responsible both for students receiving relatively large amounts of a service and also performing poorly on a measure of student outcomes. This, in fact, is a common risk of studies of programs to help disadvantaged students, because the disadvantages that make a student eligible for special programs also are related to poor academic performance; unless appropriate statistical adjustments are made, a negative relationship between participation and achievement may simply mean that a program failed to fully compensate for students' disadvantages, even if the participation might have been helpful. It is because of this risk that considerable effort was given to selecting a comparison group that had similar characteristics to the SSS participants, and for using additional statistical adjustments in the regression models.

The SSS service variable that most regularly produced negative and statistically significant coefficients was professional counseling. Additional analysis of the data indicated that there were systematic differences between students who received counseling and those who did not. For example, students who received no professional counseling had the strongest prior academic backgrounds (i.e., based on their mean SAT/ACT percentiles of 0.43). More generally, the strength of the students' prior backgrounds was inversely related to the amount of counseling they received (with SAT/ACT percentiles of 0.34 for students receiving up to 1 hour of professional counseling, 0.27 for 1 to 2 hours, and 0.24 for 2 to 4 hours; an exception to this pattern is that the percentile was 0.36 for the 6 percent of students receiving over 4 hours of professional counseling). Similar patterns appeared for other types of counseling besides professional counseling. Students who received no peer counseling had the strongest prior backgrounds with mean SAT/ACT percentile scores of 0.40, while students who received up to 1 hour of peer counseling had mean percentiles of 0.28, and those who received over 1 hour had mean percentiles of 0.25. For non-SSS counseling, the results were mixed depending on the type of counseling received. College re-entrance counseling showed a similar pattern to those above, with the students who received counseling having weaker backgrounds (0.35) than those who did not (0.39). For other non-SSS counseling, however, the pattern sometimes held and sometimes did not: students who received 1 to 3 sessions had stronger backgrounds (0.45) than students with more than 3 sessions (0.38), but also stronger than those with no counseling (0.37).

In principle, it should be possible to statistically adjust for the systematic differences in student characteristics so that the effect of counseling can be measured. In practice, however, the statistical adjustments that were appropriate for the remaining SSS service variables did not completely compensate for the relative disadvantage of students receiving professional counseling. Even when the remaining SSS service variables were deleted from a regression to predict students' first-year GPAs (under the assumption that different statistical adjustments are required for professional counseling than for other services), the relationship remained negative (though statistically insignificant). The primary change among the rest of the variables in the regression model was a slightly lower intercept, suggesting that students who need professional counseling were somehow academically more disadvantaged, but this disadvantage was not well captured by the other explanatory variables. Thus, it appears that the proper modeling of characteristics associated with receiving counseling would require data that are not currently available. One reason for this may be that professional counseling was often administered in a manner that was distinct from other SSS services; students who appeared to be in academic trouble were often called in for professional counseling, so that the receipt of professional counseling was often an indicator of academic distress.

Given the above difficulties, it seems the best interpretation of negative regression coefficients is to group these together with other SSS services that failed to show positive and statistically significant results; they all are services for which no benefit to students can be statistically proven. This does not mean that services that fail to show positive effects are proven to have no effect; a failure to prove that a coefficient is different from zero does not mean that the coefficient is equal to zero. For the particular case of negative regression coefficients, we especially have reason to think that the model is not working properly, and thus not to give excessive attention to those statistics. In this report, the focus is primarily on those services that do show positive and statistically significant results, rather than discussing each SSS service individually.

Another question that was examined was the treatment of negative but statistically significant regression coefficients when calculating the total impact of SSS. As described in an earlier section, the total impact was estimated by multiplying the positive and statistically regression coefficients by the actual number of hours of services received for each student, and then calculating the total across all services. The negative but statistically significant coefficients should not be considered reliable estimates of the effects of SSS, and in that sense they should not be included in the calculations. On the other hand, it might be that the size of the positive and statistically significant coefficients is due in part to the presence of negative coefficients, and that they would be smaller (with a correspondingly smaller total effect of SSS) if the variables showing a negative relationship were not included. To investigate this possibility, the regressions were recalculated with the negative but statistically significant variables excluded. Overall, the coefficients that previously were statistically significant continued to be statistically significant, with coefficients that were roughly the same as those that were found previously. For example, the estimated impact of SSS on students GPAs in the first year would generally be 0.01 lower than reported in chapter 7 if this procedure is followed. Thus, the presence of negative but statistically significant coefficients does not seem to have had an important effect on estimates of the effects of other SSS services or on the calculation of the total impact.

7. THREE-YEAR STUDENT OUTCOMES ASSOCIATED WITH SSS PARTICIPATION IN THE FIRST YEAR

HIGHLIGHTS

- SSS had a positive and statistically significant effect on three separate measures of student outcomes. The impact of services received in the first year often persisted in later years.

    - Students' GPAs were increased by a mean of 0.15 in the first year, 0.11 in the second year, and 0.11 in the first 3 years combined.
    - The number of credits earned was increased by a mean of 1.25 in the first year, 0.79 in the second year, 0.71 in the third year, and 2.25 in the first 3 years combined.
    - Retention at the same institution was increased by 7 percentage points for retention to the second year, and by 9 percentage points for retention to the third year. Retention to the third year at any higher education institution was increased by 3 percentage points.

- Particular SSS services stood out as especially effective. The average estimated improvement in student outcomes among students receiving these services is shown in table 7-1.

    - Peer tutoring showed positive and statistically significant effects for each of the three student outcomes (GPAs, credits earned, and retention), and for each of the first 3 years (except for the third-year GPA).
    - Participation through SSS in cultural events was associated with increased GPAs in the first year, and an increased number of credits earned in all 3 years.
    - SSS workshops had a positive impact on the number of credits earned in the first year, and on retention to the second and third years at the same institution.
    - Instructional courses that were exclusively for SSS students were associated with increased retention to the second and third years at the same institution.
    - Programs that blended SSS and non-SSS services had increased rates of retention at both the same institution and at any institution.

Table 7-1
Estimated improvement in student outcomes among students receiving particular SSS services

SSS service	Increase in GPA				Increase in credits earned				Increase in percentage retained		
	Year 1	Year 2	Year 3	Cumulative	Year 1	Year 2	Year 3	Cumulative	Year 2 (same institution)	Year 3 (same institution)	Year 3 (any institution)
Peer tutoring	0.12	0.08	--	0.06	1.47	1.15	0.83	3.10	3	6	4
Cultural events	0.16	--	--	--	3.21	2.28	2.65	6.57	--	--	--
Workshops	--	--	--	--	0.89	--	--	--	5	6	--
Instructional courses	--	--	--	--	--	--	--	--	5	7	--
Blended programs	--	--	--	--	--	--	--	--	7	7	4
Home-based programs	0.14	0.13	--	0.14	--	--	--	--	--	--	--

-- = Not statistically significant

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

  - Programs that provided a home base on campus that served the "whole student" were associated with increased GPAs in the first and second years, and in the 3-year cumulative GPA.

- On average, the greater the number of hours of services that students received, the greater were the improvements they experienced in student outcomes. For example, each 10.8 hours of peer tutoring was associated with a 0.1 increase in the first-year GPA, and each 2.6 hours of peer tutoring was associated with a 1 percentage point increase in retention to the second year at the same institution.

INTRODUCTION

This chapter examines the short- and long-term impact of SSS services in the first year on three types of student outcomes: students' GPAs, the number of credits earned, and students' retention to the second and third years in college. The next chapter looks at special topics related to SSS participation, including the degree to which the impact of SSS services varies among students with different characteristics, and an examination of SSS and other services received after the first year. Only a limited discussion of the research methodology is presented here, while additional information can be obtained from chapter 6.

SSS students typically participate most in SSS during the freshman year, while they show little difference from comparable non-SSS students in the services they receive in later years. Because the services are primarily limited to a single year, it is possible that the benefits are also limited to the same year, with SSS helping students only with the specific courses they take at that time. On the other hand, another possibility is that SSS participation gives students skills or knowledge that will be useful in later years as well, so that SSS participation could have a persisting impact. In order to determine which years of a student's college career are affected by SSS participation, this chapter examines student outcomes for each of the first 3 years individually. The cumulative program effect is also examined by combining all 3 years and estimating the impact of SSS.

IMPACT OF SSS ON STUDENTS' GPAS

One basic measure of students' academic performance is their college GPAs. Marginal students may not be allowed to continue their enrollment unless a certain minimum GPA is maintained. Ultimately, colleges typically require a minimum GPA for graduation, and graduate schools often use GPAs when deciding who will be admitted.

It is possible to estimate the impact of SSS either by conducting an overall comparison of SSS and non-SSS students or by summing the impact of individual services. However, as shown in chapter 6, SSS students vary widely in the types and amounts of services they receive through SSS; for this reason, one would anticipate that models allowing for these differences among students would be more accurate and also more powerful than those that assume a uniform effect. Table 7-2 confirms this hypothesis by comparing the results of both types of statistical models: the results are stronger and more consistent when the more detailed measures of participation are used. For the first-year GPAs, both types of tests showed statistically significant impacts of SSS, but the estimated impact was marginally smaller when the overall test was used than when measures of specific services were used. For both the second-year GPAs and the third-year cumulative GPAs, only the tests based on differences in student participation showed a statistically significant impact, while the overall test failed to produce statistically significant results. Because the models based on differences in student participation provide both a more realistic and more powerful test of the impact of SSS participation, the remainder of this section focuses on these results.

Table 7-2
Summary of measured effects of SSS on GPA across differing methodologies

SSS service	First year		Second year		Third year		Third-year cumulative	
	Overall	Specific services	Overall	Specific services	Overall	Specific services	Overall	Specific services
	(Increase in GPA using four-point scale)							
Across all SSS students								
Peer tutoring	NA	.06	NA	.04	NA	--	NA	.03
Cultural events	NA	.02	NA	--	NA	--	NA	--
Home-based	NA	.08	NA	.07	NA	--	NA	.08
Total program effect	.13	.15	--	.11	--	--	--	.11
Among SSS students receiving service								
Peer tutoring	NA	.12	NA	.08	NA	--	NA	.06
Cultural events	NA	.16	NA	--	NA	--	NA	--
Home-based	NA	.14	NA	.13	NA	--	NA	.14
Total program effects	NA	.19	NA	.13	NA	--	NA	.13

NA - Not applicable

-- = Not statistically significant

NOTE: Impact of specific services was calculated by multiplying the regression coefficients by the actual number of hours of each service received and then calculating the mean impact across students. The category "Across all SSS students" includes students who received zero hours of a given service, while the alternative category does not. The total program effect reflects all services combined.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Figure 7-1 shows the estimated impact of SSS on participating students for their first 3 years in college.[1] SSS produced a positive and statistically significant increase of 0.15 (on average) in students' GPAs in the first year, and of 0.11 in the second; further, while no statistically significant effects were found for the third year alone, the 3-year cumulative GPAs also show a positive and statistically significant increase of about 0.11. (The latter result is not surprising since the first and second years compose a large proportion of the course taking that would determine third-year cumulative GPAs; still, it suggests that the benefits of SSS participation do persist in at least a weak way for 2 years following the receipt of services.) The net effect of these increases was to change the mean GPAs to 2.29 in the first year, 2.44 in the second year, and 2.59 in 3-year cumulative GPAs.

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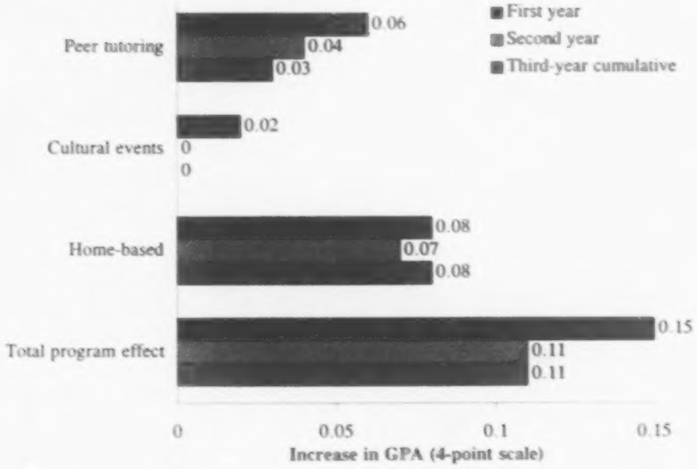
[1] These estimates are based using on using multiple regressions to estimate the impact per hour of each service received, multiplying the regression coefficients by the actual hours of services received by each student, and calculating the mean of the estimated impacts. The methodology is discussed in more detail in chapter 6. The regression equations that were used to estimate the impact per hour of each service are presented in the appendix tables to this chapter.

Figure 7-1 also indicates that particular SSS services were especially associated with improvements in students' GPAs. The services that were most valuable were peer tutoring (producing an overall increase of 0.06 in students' GPAs in the first year), cultural events (0.02), and programs that were home based (0.08); two of these services also were associated with roughly similar increases in both second-year GPAs and third-year cumulative GPAs—peer tutoring (0.04 in the second year, and 0.03 in the third-year cumulative GPA) and home-based programs (0.07 and 0.08, respectively).

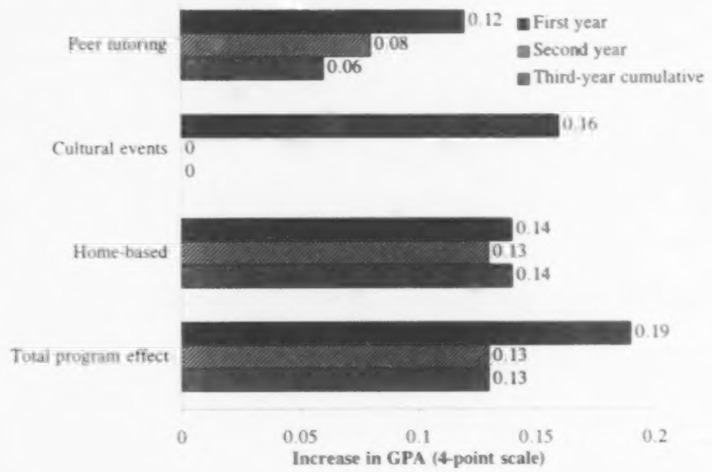
Figure 7-1
Estimated effects of SSS services on GPA among all SSS students



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

While figure 7-1 helps one to estimate the impact across all SSS programs, there is a sense in which it understates the value of the individual SSS services. For example, if one wishes to know the impact of peer tutoring, it is logical to estimate the impact only among those receiving peer tutoring; otherwise one is not really measuring the impact of peer tutoring per se, but rather of a national system that provides peer tutoring to some students and not to others. Especially if one is trying to determine what mix of services should be offered, one needs to know the effect that each service will produce. Among students who received peer tutoring, the estimated overall increase in GPA was 0.12 in the first year and 0.08 in the second year (Figure 7-2). Similarly, among those who were in home-based programs, the increase was 0.14 in the first year and 0.13 in the second. Participation in cultural events did not show a statistically significant impact in the second year, but the impact was sizable in the first year for those students who participated, with an increase of 0.16. Finally, among those students who received at least one of the statistically significant services, the combined impact of all of the SSS services was an average 0.19 increase in the first-year GPAs, 0.13 in the second year, and 0.13 in the third-year cumulative GPAs.

Figure 7-2
Estimated effects of SSS services on GPA among SSS students receiving service



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes, 1993-94.*

IMPACT OF SSS ON STUDENTS' TOTAL CREDITS EARNED

A second measure of a student's academic performance is the total number of credits earned by the student. Probably the greatest value of this measure is that the number of credits can provide a more balanced view of a student's progress than does his/her GPA alone. It provides a measure of the degree of challenge the student faced and the strength of the student's commitment to the academic program; ultimately, the number of credits completed is one of the primary requirements for a student to graduate.[2]

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[2] The measure of the number of credits earned is more problematic (especially in the first year) than either the GPA or retention measures because of its varied meanings across institutions: at one institution a course may count for credit, while a similar course may earn no credit at another institution. Since 30 percent of the sampled students took at least one noncredit course during the first year, institutional differences in defining for-credit courses can make a considerable difference to the overall findings. The taking of noncredit courses was also more common among SSS students than among the non-SSS comparison group, particularly at 2-year colleges (a mean of 1.4 courses versus 0.5) and doctorate-granting institutions (1.3 versus 0.5); this result is hardly surprising since SSS often involves the provision of supplemental courses, but it can create systematic biases that may result in misleading comparisons between SSS and non-SSS students.

Table 7-3
Summary of measured effects of SSS on total credits earned across differing methodologies

SSS service	First year		Second year		Third year		Third-year cumulative	
	Overall	Specific services	Overall	Specific services	Overall	Specific services	Overall	Specific services
	(Increase in total credits earned)							
Across all SSS students								
Peer tutoring	NA	0.66	NA	0.55	NA	0.41	NA	1.51
Workshops	NA	0.28	NA	--	NA	--	NA	--
Cultural events	NA	0.32	NA	0.25	NA	0.30	NA	0.74
Total program effect	0.73	1.25	--	0.79	--	0.71	--	2.25
Among SSS students receiving service								
Peer tutoring	NA	1.47	NA	1.15	NA	0.83	NA	3.10
Workshops	NA	0.89	NA	--	NA	--	NA	--
Cultural events	NA	3.21	NA	2.28	NA	2.65	NA	6.57
Total program effects	NA	1.91	NA	1.46	NA	1.27	NA	4.04

NA - Not applicable.

-- = Not statistically significant.

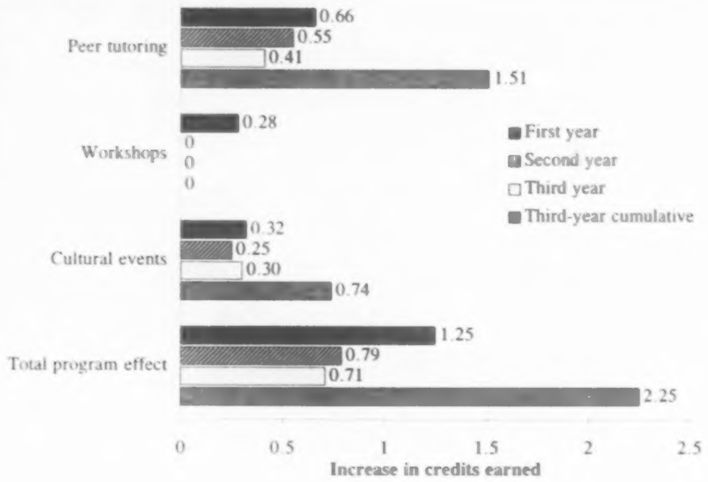
NOTE: Impact of specific services was calculated by multiplying the regression coefficients by the actual number of hours of each service received and then calculating the mean impact across students. The category "Across all SSS students" includes students who received zero hours of a given service, while the alternative category does not. The total program effect reflects all services combined.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

As with the analysis of students' GPAs, one would anticipate that the best measures of SSS participation would allow for differences among students in the amounts and types of services received. Table 7-3 confirms that the regressions were consistently more sensitive in detecting the impact of SSS when the more specific measures of SSS participation were used: the more detailed models showed statistically significant results for each of the 3 years individually and for all 3 years combined, while the overall tests only showed statistically significant results for the first year. Further, the estimated impact in the first year was higher when the more detailed measure was used (1.25 credits) than when an overall test was used (0.73). The remaining discussion focuses on the results from the more detailed measures of SSS participation.

SSS showed a positive and statistically significant effect on the number of credits earned for each of the first 3 years of students' college careers, and for all 3 years combined (figure 7-3). In the first year, students on average earned an estimated 1.25 credits more than they otherwise would have earned. In the second and third years, the average estimated increase was slightly less than 1 credit (0.79 and 0.71 for the 2 years, respectively), with a cumulative 3-year increase of 2.25 credits. In sum, the total number of credits earned was increased to a mean of 20.91 in the first year, 20.62 in the second year, 20.58 in the third year, and 73.38 for all 3 years combined.[3]

Figure 7-3
Estimated effects of SSS services on total credits earned among all SSS students



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

The receipt of particular SSS services was especially associated with an increased number of credits earned.[4] Peer tutoring made the largest overall contribution in each of the 3 years, with an average increase of 0.66 credits in the first year, 0.55 credits in the second year, 0.41 credits in the third year, and 1.51 credits over all 3 years combined.[5] Participation in SSS cultural events added an average of 0.32 credits in the first year, 0.25 credits in the second year, 0.30 credits in the third year, and 0.74 credits over all 3 years combined. Participation in workshops showed a statistically significant impact only for first year, with an average increase of 0.28 credits.

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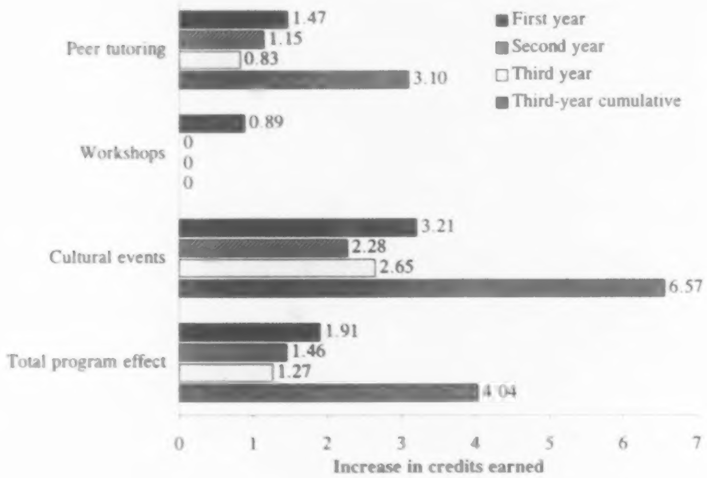
[3] Because the number of students varied from one year to another, the cumulative total is not equivalent to the sum of the estimates for each year.

[4] The regression results also show a statistically significant impact in the second year for how SSS programs are organized, with students in nonblended programs showing a greater number of credits earned on average than those in blended programs. However, these results do not seem trustworthy. First, the regression results for the first year were in the opposite direction (i.e., students in blended programs did better), though they were statistically insignificant. Second, in a finding presented later in this chapter, students in blended programs were more likely to be retained than those in nonblended programs, and that relationship was much more consistent (for all three measures of retention) than this finding (which was only for 1 year). A possible explanation is that the additional students who were retained in blended programs tended to enroll on a part-time basis in the second year, so that a result of their retention might have been a lowering of the overall average number of credits earned. Two statistical findings partially confirm this hypothesis. For those SSS participants whose probability of retention was changed to become greater than 50 percent, fewer credits were earned on average in the second year than for other students. Further, if these students are excluded from the regression analysis, then the coefficient for blended programs is decreased in magnitude and is statistically insignificant. (The other findings for the second year do not change when this test is performed.) Because of these issues, this analysis does not treat the results for blended and nonblended programs as an important finding with respect to the number of credits earned.

As in the analysis of students' GPAs, the statistics that are based on all SSS students, whether or not a student received a particular service, tend to understate the value of the individual SSS services for those students who received them. The difference is especially large for participation in cultural events, since most SSS programs did not offer them and most SSS students did not participate in them (figure 7-4). Among those who did participate, the estimated impact ranged from 2.28 credits in the second year to 3.21 credits in the first year, with a cumulative increase of 6.57 credits over all 3 years combined. Similarly, among those students who participated in peer tutoring, the estimated impact was roughly twice the impact among all students, with an average increase of 1.47 credits in the first year, 1.15 credits in the second year, 0.83 credits in the third year, and 3.10 credits over all 3 years combined. For SSS workshops, the estimated impact was an average increase of 0.89 credits in the first year among those students who participated.

Figure 7-4
Estimated effects of SSS services on total credits earned among all SSS students receiving service



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

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[5] The estimates for each year are based only on those students for whom the measure is applicable (e.g., only students who were enrolled in the second year are included in the estimates for the second, and only students who were enrolled in the third year are included in the third-year and third-year cumulative estimates), so the regressions are not all based on the same set of students. For this reason, the estimates for the individual years cannot be added to produce an estimate for all 3 years combined.

IMPACT OF SSS ON STUDENTS' RETENTION IN HIGHER EDUCATION

Given that one of the primary goals of SSS is to help disadvantaged students to attain college degrees, the closest measure of student outcomes that is currently available is the students' continued enrollment in higher education. In fact, as discussed in previous chapters, attrition is an important issue for all students, not just those who are disadvantaged: overall, 70 percent of full-time, first-time freshmen are still enrolled in the same institution after 1 year, and 49 percent of students at colleges offering baccalaureate degrees receive a baccalaureate degree from the same institution within 6 years.[6] Of course, all three student outcome measures used here are interrelated. A student who performs poorly academically may be forced to leave the college or may choose to leave because the college degree seems unattainable or not worth the effort. Also, the extent to which students remain in college will affect the number of credits they earn. Nevertheless, a particular SSS service might well have different effects on retention than on the college GPA or on the credits earned. For example, a service might help a student to feel comfortable at the college, possibly increasing the student's likelihood of staying for a second year, without necessarily affecting a student's GPA. Similarly, a service might help to overcome an academic deficiency yet not have any effect on those factors that may cause a student to want to leave (e.g., difficulties in finances).

To examine the impact of SSS on retention, several different statistical models were used. Following the same logic as in the two preceding sections, both overall tests were performed and more sensitive measures were used that accounted for differences in the types and amount of services received. The models that were based on the types and amounts of services received were again more successful than those based on overall tests that grouped all SSS students in one category: a statistically significant impact was found using all three measures of retention when the more detailed measures were used, while only a first-year impact was found if an overall test was used (table 7-4).[7] This again supports the hypothesis that the effects of SSS vary too much for it to be appropriate to group all students together. A second variation in the statistical models was also explored: because of a concern that SSS might affect retention both directly and indirectly through its effect on students' GPAs, table 7-4 summarizes models that intentionally excluded college GPAs from consideration and structural equations models that were designed to adjust college GPAs by removing the increase that was related to SSS participation. These models confirmed that SSS did affect retention indirectly through its effect on GPA. When students' college-level GPAs were left in the regression models without adjusting for possible indirect effects though GPA, the models performed less well than when students' GPAs either were excluded or were adjusted (though structural equations models) to remove the increase that would have been produced through participation in SSS. For example, an overall test of the effect of SSS was only statistically significant when students' college GPAs were removed (when predicting students' retention to the second year), and peer tutoring only showed statistically significant impacts on retention to the third year (at either the same institution or any institution) when students' college GPAs were removed or adjusted through the use of structural equations. For this reason, the remainder of this section will focus on the structural equations as providing the best estimates of the effects of SSS.[8]

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[6] Chaney, B., and Farris, E. *Survey on Retention at Higher Education Institutions*, Higher Education Survey System, survey number 14, sponsored by the U.S. Department of Education, November 1991, p. 4.

[7] Even the first-year impact was only found using the overall test if the model was adjusted to avoid modeling some of the impact of SSS through a measure of the first-year college GPA.

The fact that retention is measured in percentages requires a special note about terminology. Throughout this section, the term "percentage point" is used to describe the arithmetic increase in retention that is associated with SSS participation. For example, if retention increased from 60 percent to 70 percent, that increase is described as a 10 percentage point increase. This terminology is used to avoid confusion with another way that percentages are used—to describe a multiplicative increase (e.g., 10 percent of 60 is 6; therefore, a 10 percent increase from 60 percent would be an increase to 66 percent.

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[8] The different statistical models are described and compared in more detail in chapter 6.

Table 7-4
Summary of measured effects of SSS on retention courses across differing methodologies

SSS service	Retention to the second year at the same institution					Retention to the third year at the same institution					Retention to the third year at any institution				
	Overall		Specific services			Overall		Specific services			Overall		Specific services		
			Logistic regression		Structural equations			Logistic regression		Structural equations			Logistic regression		Structural equations
	With college GPA	Without college GPA	With college GPA	Without college GPA		With college GPA	Without college GPA	With college GPA	Without college GPA		With college GPA	Without college GPA	With college GPA	Without college GPA	
	(Increase in percent retained)														
Across all SSS students															
Instructional courses	NA	NA	2	2	1	NA	NA	2	2	2	NA	NA	--	--	--
Peer tutoring	NA	NA	2	3	1	NA	NA	--	3	3	NA	NA	--	2	2
Workshops	NA	NA	2	2	2	NA	NA	2	2	2	NA	NA	--	--	--
Handicapped services	NA	NA	--	--	--	NA	NA	1	--	--	NA	NA	--	--	--
Blended	NA	NA	4	3	3	NA	NA	4	4	3	NA	NA	2	3	2
Home-based	NA	NA	-3	--	--	NA	NA	-4	--	--	NA	NA	--	--	--
Total program effect	--	5	9	10	7	--	--	7	10	9	--	--	2	2	3
Among SSS students receiving services															
Instructional courses	NA	NA	5	5	5	NA	NA	5	7	7	NA	NA	--	--	--
Peer tutoring	NA	NA	5	7	3	NA	NA	--	6	6	NA	NA	--	5	4
Workshops	NA	NA	7	6	5	NA	NA	6	6	6	NA	NA	--	--	--
Handicapped services	NA	NA	--	--	--	NA	NA	39	--	--	NA	NA	--	--	--
Blended	NA	NA	10	8	7	NA	NA	9	9	7	NA	NA	6	6	4
Home-based	NA	NA	-6	--	--	NA	NA	-8	--	--	NA	NA	--	--	--
Total program effect	NA	NA	10	11	8	NA	NA	10	12	11	NA	NA	6	6	5

NA - Not applicable

-- = Not statistically significant

NOTE: Impact of specific services was calculated by multiplying the regression coefficients by the actual number of hours of each service received and then calculating the mean impact across students. The category "Across all SSS students" includes students who received zero hours of a given service, while the alternative category does not. The total program effect reflects all services combined.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

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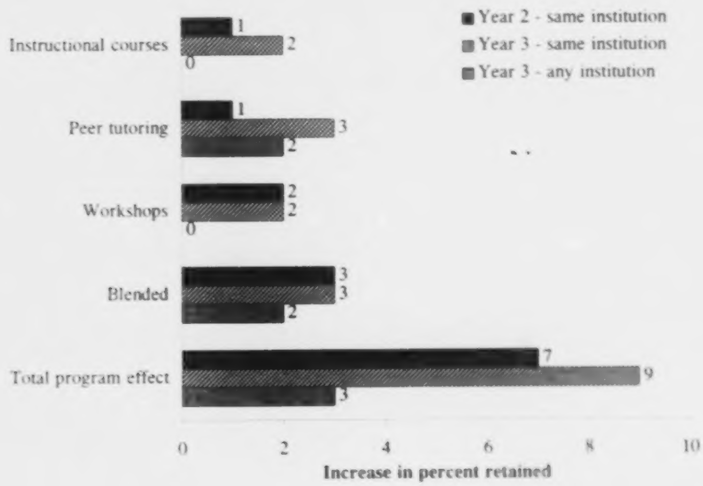
Participation in SSS had a positive and statistically significant impact on retention, whether measured by retention to the second year at the same institution, to the third year at the same institution, or to the third year at any higher education institution (figure 7-5). The greatest impact on retention was in influencing retention at the same institution, with SSS participants showing a retention rate that was 7 percentage points higher than otherwise would have been predicted in the second year, and 9 percentage points higher in the third year; by contrast, the retention rate was higher by 3 percentage points when measured as retention in any higher education institution to the third year. In absolute terms, the estimated increase in retention resulted in retention rates of 67 percent for the second year at the same institution, 49 percent for the third year at the same institution, and 77 percent for the third year at any institution.

Figure 7-5
Estimated effects of SSS services on retention among all SSS students



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

The factor that had the greatest average impact on retention was whether the program blended SSS services with non-SSS services, with blended programs having retention rates that were 3 percentage points higher than otherwise would have been expected for retention to the second and third years at the same institution, and 2 percentage points higher for retention to the third year at any institution. The other SSS service that was most consistently associated with retention was peer tutoring: an average increase ranging from 1 to 3 percentage points appeared for all three types of retention. SSS instructional courses and workshops showed positive and statistically significant effects on retention to the second and third years at the same institution (with increases of 1 or 2 percentage points in the retention rate), but not on retention to the third year at any institution.

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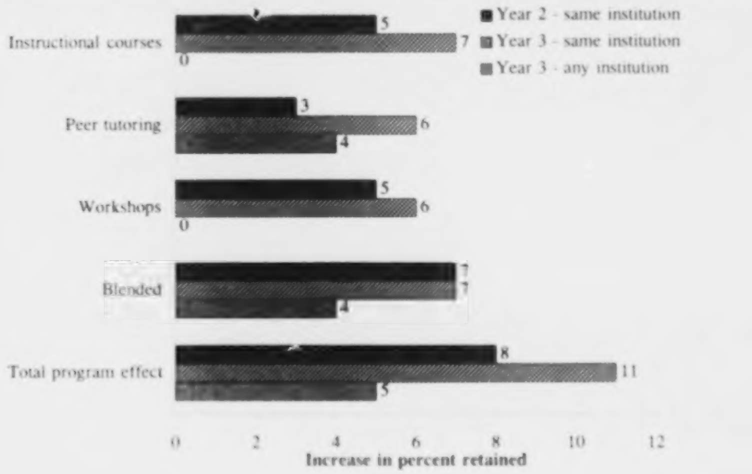
A greater impact on retention appeared if one limited the analysis to SSS students who received statistically significant services (figure 7-6). Among those students in blended programs, the average increase in retention was 7 percentage points for retention to the second and third years at the same institution (versus 3 percentage points among all SSS students), and 4 percentage points for retention to the third year at any institution (versus 2 percentage points). Among those receiving peer tutoring, the increase ranged from 3 to 6 percentage points, and among those participating in SSS instructional courses or workshops, the increase ranged from 5 to 7 percentage points. The total program effect, if participation in all statistically significant services is combined, was an 8 percentage point increase in retention to the second year at the same institution, 11 percentage points for retention to the third year at the same institution, and 5 percentage points for retention to the third year at any institution.

Figure 7-6
Estimated effects of SSS services on retention among SSS students receiving service



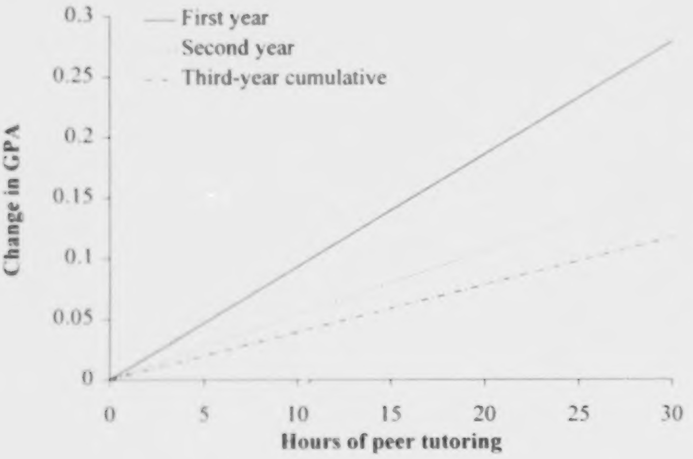
SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

PARTICIPATION LEVELS AND STUDENT OUTCOMES

Chapter 6 noted that many students in SSS had relatively little involvement with the SSS programs: they either had few service contacts or they had few total hours of participation. A logical implication, which was confirmed by the comparison of multiple statistical models, is that the degree to which students' outcomes were affected by SSS depended on the degree to which they participated in SSS. The regression equations presented at the end of this chapter in fact may be interpreted as indicating the average improvement in student outcomes associated with each hour of service received.

Figure 7-7 displays selected regression coefficients for peer tutoring in a visual format to show the association between level of participation and student outcomes. For example, students receiving 15 hours of peer tutoring in the first year would be predicted to have their first-year GPAs improved by 0.14, their second-year GPAs by 0.08, and their third-year cumulative GPAs by 0.06. An examination of the residuals suggests that the relationships are linear, with a consistent effect per hour of peer tutoring received.

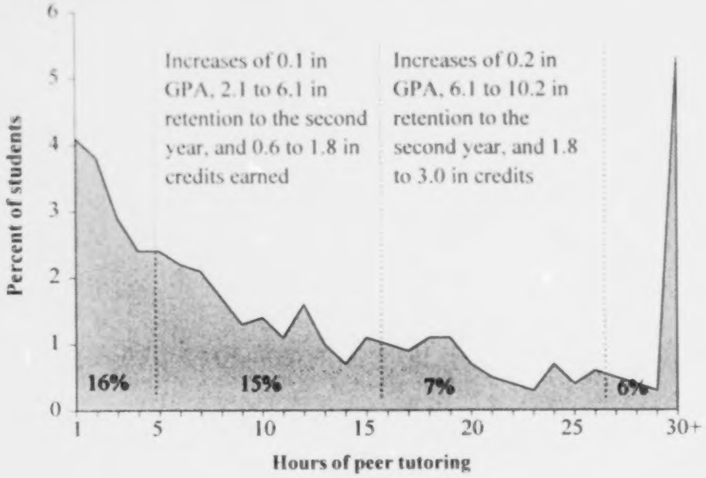
Figure 7-7
Relationship between GPA and number of hours of peer tutoring received



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Of course, the actual impact of SSS depended on the distribution of students at different levels of service. Figure 7-8 displays the percentage of students receiving different levels of peer tutoring.[9] For example, 15 percent of SSS students received between 5.4 and 16.1 hours of peer tutoring; for these students, the predicted effect of peer tutoring would be to increase their first-year GPAs by 0.1 (rounded to the nearest tenth), their retention to the second year at the same institution by 2.1 to 6.1 percent, and their total number of credits earned by 0.6 to 1.8. Looking at the total distribution, there was considerable variation in the effects of peer tutoring with some students participating at high levels and having high predicted effects, and other students participating at much lower levels with lower effects.

Figure 7-8
Effects in first year from peer tutoring, based on amount of peer tutoring received



NOTE: For example, 15 percent of SSS students received between 5.4 and 16.1 hours of peer tutoring, with a predicted effect of a 0.1 increase in their first-year GPAs. Not shown are the 56 percent who received less than 0.5 hours of peer tutoring.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

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[9] To simplify the graphic, the students' participation levels were rounded to the nearest hour. The actual participation levels were recorded in terms of minutes, though students often received services in 1-hour increments.

Table 7-5 provides a summary of the number of hours of service associated with each increment of improvement in student outcomes.[10] For example, students' first-year GPAs were increased by 0.1 on average through each additional 10.8 hours of peer tutoring, and their retention to the third year at the same institution was increased by 1 percentage point on average through each additional 2.3 hours of peer tutoring.

Table 7-5
Number of hours of services that were associated with incremental changes in student outcomes

SSS service	Increase in GPA of 0.1				Increase in credits earned of 1.0				Increase in retention by 1 percent		
	Year 1	Year 2	Year 3	Cumulative	Year 1	Year 2	Year 3	Cumulative	Year 2 (same institution)	Year 3 (same institution)	Year 3 (any institution)
Peer tutoring	10.8	18.9	--	25.6	9.1	12.2	17.8	4.8	2.6	2.3	3.3
Cultural events	2.6	--	--	--	1.3	7.5	1.7	0.7	--	--	--
Workshops	--	--	--	--	5.4	--	--	--	1.0	0.8	--
Instructional courses	--	--	--	--	--	--	--	--	12.5	8.3	--

-- = Not statistically significant

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

Because the interpretation of table 7-5 depends on the actual distribution of services, additional information on the distribution is provided in table 7-6. The most widely used of the four services was peer tutoring (45 percent), though those students who participated in SSS instructional courses received the greatest number of hours of a service (a mean of 58.0). Workshops and cultural events involved the smallest numbers of hours (with means of 4.9 and 4.2, respectively), and cultural events involved the fewest students (10 percent).

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[10] These estimates are the same as those presented in the regressions at the end of this chapter except that the scale has been transformed from the mean increase per hour of service to the mean number of hours of service that are associated with an increment of change. This transformation was made because the coefficients for a single hour of service tended to be unwieldy due to their small size. Also, table 7-5 reports only on those SSS services that showed positive and statistically significant effects.

Table 7-6
Distribution of SSS services that showed a positive and statistically significant impact

SSS service	Percent receiving service	Among students receiving service				
		Mean	10th percentile	25th percentile	75th percentile	90th percentile
Peer tutoring	45%	13.3	1.0	3.2	18.0	33.0
Cultural events	10	4.2	1.0	2.0	5.0	12.0
Workshops	31	4.9	1.0	2.0	8.0	10.8
Instructional courses	32	58.0	10.8	15.0	94.0	144.0

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

SUMMARY AND INTERPRETATION OF ESTIMATED IMPACT OF FIRST-YEAR SERVICES

Overall Patterns in the Impact of SSS

Patterns among the various outcomes. When all three outcome measures are viewed together, the impact of SSS seems quite consistent. SSS showed a positive and statistically significant impact for both the first and second years for all three measures of student outcomes, and for the third year for two of the three measures of student outcomes. Generally, the impact was greatest during the first year (when the services were received), but the persisting impact in later years suggests that the first-year services helped to produce long-term changes rather than simply helping students with particular classes. For retention, the SSS impact appeared slightly larger in the third year (9 percentage points) than in the second (7 percentage points); this may be an indication that retention benefits accumulate, because students who are retained until the third year must first be retained to the second year, and then also retained to the third. Only for students' GPAs in the third year did SSS fail to show a statistically significant impact, and SSS still showed a statistically significant impact on the third-year cumulative GPAs.

Patterns among individual services. The results also appear highly consistent when one looks at the specific services that had a positive and statistically significant impact. Several services not only showed persisting impacts across multiple years, but also showed an impact on at least two of the student outcomes examined. Peer tutoring consistently showed a positive impact for all three student outcomes and for all 3 years, with the only exception being the lack of a statistically significant impact on GPAs earned in the third year. SSS workshops showed a positive impact on both retention (to the second and third years at the same institution) and on the number of credits earned (in the first year). Participation in SSS cultural events was associated with an increased number of credits earned for all three of the years that were examined, and with increased GPAs in the first year.

A few SSS services only showed an impact on one SSS outcome. SSS instructional courses were associated with increased retention to the second and third years at the same institution, home-based programs were associated with increased GPAs for the first year and for the third-year cumulative GPA, and blended programs were associated with increased retention both at the same institution (for both years) and at any higher education institution.

Theoretical Basis for Differences Among SSS Services

Based on previous literature about providing assistance to disadvantaged students, and looking at the patterns in terms of which services were associated with which student outcomes, one can speculate about the underlying mechanisms that made some services more effective than others. Clearly one need of the students was for help with their academic deficiencies; thus, peer tutoring was the single most consistent SSS service in terms of its effects on all three types of student outcomes—grades, credits earned, and retention. At the same time, the SSS data also provide substantial evidence that SSS students needed and benefited from assistance that was designed to deal with students' motivation and attitudes. For example, while cultural events presumably had little direct effect on academic knowledge or skills, they nevertheless were correlated with both increases in students' GPAs and in the total credits earned. This result fits well with the research literature on college achievement, which suggests that social integration into the campus environment can be strongly related to achievement.[11]

More generally, students' need for both academic and nonacademic services helps to explain many of the findings concerning individual SSS services.

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[11] It is possible that some or all of this relationship was due to students choosing to participate in cultural events *because* they were already socially integrated, rather than becoming socially integrated through their participation. Still, this evidence supports the hypothesis that social integration is related to academic achievement, and that SSS might be able to influence social integration by consciously adopting programs that are designed to improve students' integration. Further, given that SSS students were either educationally or economically disadvantaged, one could easily anticipate a negative relationship between cultural events and student outcomes. Also, since many SSS students were at institutions that did not offer cultural enrichment events through SSS, if the results were not due to a positive impact of SSS, it is surprising that a statistically significant relationship could still be found. Thus, though these findings are not conclusive, they are strongly suggestive that cultural events make a difference.

- *Why was participation in SSS instructional courses associated with improvements in retention but not with improvements in GPAs?*

From an academic perspective, SSS instructional courses may not have had important differences from equivalent courses that combined SSS and non-SSS students (and thus, that were not classified as *SSS* instructional courses), but the grouping together of SSS students in a separate course may have offered social advantages that affected a student's contentment at college—perhaps because the SSS students developed a sense of belonging and mutual support when they were purposefully grouped together.

- *Why did workshops show positive and statistically significant effects on both the credits earned and on retention, but not on students' GPAs?*

The likely explanation is that workshops primarily were used to orient students for college, rather than to provide academic services. Again, this reaffirms the importance of nonacademic services, especially for outcomes such as retention.

- *Why did one type of tutoring (peer) show statistically significant effects, while another (professional) did not?*

The lack of statistical significance could simply be due to the smaller number of students who received professional tutoring. Still, even fewer students participated in cultural events, yet that SSS service was statistically significant. Another possibility is that peer tutoring addressed both academic and nonacademic needs, while professional tutoring addressed only academic needs. It may be that the peer tutors also acted as role models—especially in those cases where past SSS participants served as peer tutors—and thus helped to reinforce that SSS students could succeed and even provide help to other SSS students in the future. Peer tutors who were past SSS participants may also have better understood the SSS students, and thus they provided more appropriate help.[12]

- *Why did professional counseling—one of the major emphases of SSS—not show positive effects?*

A methodological reason (statistical bias based on providing extra counseling to students who were performing poorly) was presented in chapter 6, but the need for a mixture of academic and nonacademic services may also be important. Professional counseling primarily consists of academic advising (e.g., help with choosing courses and majors), and by itself may neither directly address the students' academic needs nor offer much help in meeting students' nonacademic needs (e.g., it probably would not affect the students' integration with other students). To the extent that counseling encourages a student to persevere and to seek other SSS services (e.g., peer tutoring to address his/her academic needs), then counseling may be helpful, but the impact may be captured through those other services. Otherwise, obtaining counseling may be an inappropriate means of addressing the student's academic needs (e.g., it may indicate the student was trying to change courses rather than address his/her academic deficiencies), and thus it may fail to show a positive effect on student outcomes.

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[12] Unfortunately, no data were collected to quantify the use of SSS students as peer tutors or to allow a study of which students received tutoring from past SSS students and which received tutoring from other students. In order to gain the benefits of using past participants, it may not be necessary to limit the selection of peer tutors to past participants; it may be sufficient to provide a few conspicuous role models in order to reap some or all of the benefits.

Though the last explanation is speculative, the SSS data provide some support for it. The receipt of professional counseling was associated with the use of other SSS services; for example, 35 percent of those SSS students who received at least 1 hour of professional counseling also received over 5 hours of peer tutoring, compared with only 21 percent of those receiving less than 1 hour.[13] On the other hand, 49 percent of those who received over 1 hour of professional counseling still received no peer tutoring at all. Thus, while professional counseling often was part of a package of integrated services, it more often was not. The counseling may have helped when it was part of a larger package.[14] Adjusting for student and institutional characteristics, students who received both tutoring and professional counseling received slightly higher mean first-year GPAs than those who received tutoring without professional counseling (2.44 versus 2.38), though the difference was not statistically significant.

More generally, the fact that other SSS services failed to show statistically significant results does not necessarily mean they were ineffective. Rather, the positive and statistically significant effects of home-based programs on students' GPAs and of blended

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[13] Similarly, a regression analysis shows a positive and statistically significant relationship when the amount of professional counseling is used to predict the amount of peer tutoring among SSS students. Of course, peer tutoring was not the only means for overcoming academic deficiencies. Still, 93 percent of the students were in programs where peer tutoring was offered to freshmen, but only 45 percent received it, including only 49 percent of those who received at least 1 hour of professional counseling and were probably especially in need of academic assistance.

[14] The SSS data do not indicate the degree to which referrals to other services were provided during the professional counseling. It may be that the effectiveness of professional counseling can be increased by making increased referrals to other types of services; on the other hand, professional counselors may already be making those referrals, but not getting the desired response. Medical doctors who treat highly disadvantaged populations sometimes complain that they can write a prescription that has the power to cure a patient's problem, but they can not force the patient to take the medicine as directed. A similar situation may occur with academic advising.

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programs on retention suggest a package of other supplemental services was often helpful.[15] For some services, the lack of statistical significance may simply be due to the small number of students receiving those particular services. In other cases, such as professional counseling, there may be other factors at work that make it difficult to properly measure the relationship between the service and student outcomes (e.g., some types of students were more likely to receive counseling than others, and the impact of counseling may depend on whether it leads students to receive other services). The safest conclusions are that (1) programs should seek to make greater use of those services that do have statistically significant impacts (especially since some programs do not offer these services, or get only some students to participate in them), and (2) programs should reevaluate the priority that is given to other services, especially with respect to whether the needs of the "whole" student are being met.

Levels of Participation

The degree to which students benefited from SSS varied according to the degree to which they participated in the statistically significant services. Often students did not participate in a particular service (e.g., their institution did not offer the service, the student was not advised to participate in it, or the student chose not to participate) or participated only at low levels. The next chapter examines the degree to which some types of students participated more than others. A more general finding, however, is that the amount of service showed a linear relationship to the outcomes that were experienced, with greater levels of participation being associated with greater levels of impact.

One can ask whether the impact of SSS can be increased by increasing students' level of participation. Two important qualifications must be considered. First, it is possible that the benefits measured here may not be transferable to a larger pool of SSS students. For example, it is possible that the effectiveness of these programs was partly due to careful referrals, so that only students who would benefit were referred to a particular service. Similarly, the fact that a student participated in a particular service may reflect both that student's need for the service and his/her motivation to make use of it, while other students might not benefit because they lack either the need or the motivation. However, even if expanded use of these statistically significant services may not benefit *every* student, it would probably benefit many. Since many institutions did not provide all of these services, it seems that much of students' failure to receive a service was from the lack of availability of the service (or the lack of knowledge of how to participate) rather than an inability to benefit. Even for peer tutoring —one of the most widely available and widely used SSS services— student responses indicate that only half of the SSS students who said they would regularly attend tutoring if it were available actually received peer tutoring through SSS. (Another one-fourth received either professional tutoring or tutoring outside of SSS, while one-fourth did not receive any in the first year.) For this reason, it seems reasonable that the impact of SSS might be increased by increasing participation in these services.

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[15] Though home-based programs cannot be equated with blended programs, a common element of both is the provision of additional services to meet the leftover needs of the students.

A second qualification is that one should be wary of extrapolating beyond the current range of the data. It is reasonable to hypothesize that a greater number of students could experience impacts comparable to those observed in this study. It is not necessarily true, however, that if all students received 10 times the services they are receiving now, they would experience 10 times the impact; presumably, at some point the students would have received enough services that additional increases would not be useful or at least would not have the same impact. The statistics that were provided in figures 7-2, 7-4, and 7-6 can be used as one way of estimating the potential impact of SSS; to attain these outcomes would not require that students receive entirely new levels of services, but only that additional students fit the current patterns of use of the services among those receiving the services. To some degree, the impact of SSS might be further expanded by increasing students' participation levels to at least the current average levels of participation (i.e., for those students receiving less than the mean, increasing their participation to the current mean); on the other hand, some students will probably refuse to participate or will not benefit, so it is not appropriate to assume that all students will be helped. On balance, the statistics in figures 7-2, 7-4, and 7-6 might provide a reasonable but probably conservative estimate of the impact that might be anticipated among *all* SSS students if a concerted effort was made to increase the availability of and the participation rates in the statistically significant services.

Appendix:

Detailed Tables

Table 7-1a. Regression analysis to predict first-year college GPAs

	Coefficient	Standard error	P-value
Intercept	0.6891	0.1114	0.0001
Demographics			
Age in 1991	0.0269	0.0025	0.0001
Black student	-0.2132	0.0333	0.0001
Hispanic student	-0.1392	0.0419	0.0009
American Indian student	-0.1863	0.1087	0.0868
Asian student	0.0025	0.0652	0.9697
Student was female	0.0787	0.0270	0.0036
Academic background			
High school GPA	0.3221	0.0229	0.0001
Percentile on SAT/ACT	0.2210	0.0671	0.0010
Took courses at other postsec inst	0.0027	0.0366	0.9422
Hours on school activities	0.0051	0.0008	0.0001
Work for pay while school in session	-0.0815	0.0259	0.0017
Took any developmental course	-0.1361	0.0299	0.0001
SSS criteria			
No parental education beyond High School	0.0323	0.0283	0.2546
Family income greater than $20,000	0.0176	0.0295	0.5520
Institutional characteristics			
Two-year institutions	0.1432	0.0381	0.0002
Doctorate-granting institution	-0.0472	0.0346	0.1725
SSS services are home-based	0.1416	0.0405	0.0005
SSS services are blended	-0.0474	0.0406	0.2433
No SSS program at institution	-0.0843	0.0327	0.0101
Student attitudes			
Above average academic ability	0.2215	0.0269	0.0001
Expect harder time than most	-0.0631	0.0308	0.0403
Would attend free tutoring	-0.1236	0.0289	0.0001
SSS services			
Number of hours: instr. courses	0.0004	0.0006	0.4413
Number of hours: profl tutoring	0.0180	0.0119	0.1309
Number of hours: peer tutoring	0.0093	0.0016	0.0001
Number of hours: profl counseling	-0.0192	0.0070	0.0061
Number of hours: peer counseling	-0.0128	0.0277	0.6452
Number of hours: labs	0.0041	0.0029	0.1612
Number of hours: workshops	0.0010	0.0073	0.8920
Number of hours: cultural events	0.0379	0.0114	0.0009
Number of hours: handicapped srvc	0.0043	0.0044	0.3332
Non-SSS services			
Services for physically disabled	0.1508	0.0787	0.0554
Services for limited-English ability	-0.0292	0.0769	0.7044
Student orientation	-0.0223	0.0356	0.5309
College re-entrance counseling	-0.2244	0.0685	0.0011
Classrm instr--basic skills	-0.0676	0.0440	0.1245
Classrm instr--dvlpmntl English	0.0022	0.0497	0.9655
Classrm instr--dvlpmntl math	0.0431	0.0448	0.3360
Cultural enrichment activities	0.0972	0.0353	0.0059
Referrals to agencies/resources	0.0954	0.0360	0.0081
Number of counseling sessions	-0.0012	0.0032	0.7075
Number of tutoring sessions	0.0059	0.0019	0.0021
Dummy variables for missing data			
Dummy variable for missing SAT/ACT	0.0252	0.0426	0.5543
Missing data on first generation	-0.1308	0.0659	0.0474
Dummy variable for missing race	0.0448	0.1186	0.7054
Dummy variable for missing income	0.0260	0.0439	0.5531
Missing data for hours on school activities	0.1186	0.0767	0.1220
Missing data on student age	0.5123	0.1114	0.0001
Missing data on work for pay in school	-0.1163	0.1076	0.2799
Missing data on expect harder time	-0.1534	0.1717	0.3717
Missing data on high school GPA	0.6997	0.1286	0.0001
Missing data on counseling - 91	-0.2215	0.0485	0.0001

R-square = .1956

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-2a. Regression analysis to predict second-year college GPAs

	Coefficient	Standard error	P-value
Intercept	0.9622	0.1152	0.0001
Demographics			
Age in 1991	0.0206	0.0027	0.0001
Black student	-0.2959	0.0368	0.0001
Hispanic student	-0.2072	0.0450	0.0001
American Indian student	-0.6245	0.1234	0.0001
Asian student	-0.1321	0.0669	0.0484
Student was female	0.1068	0.0293	0.0003
Academic background			
High school GPA	0.3068	0.0254	0.0001
Percentile on SAT/ACT	0.3882	0.0724	0.0001
Hours on school activities	0.0032	0.0009	0.0004
Took any developmental course	-0.1737	0.0326	0.0001
SSS criteria			
No parental education beyond High School	-0.0026	0.0308	0.9323
Family income greater than $20,000	0.0466	0.0321	0.1462
Institutional characteristics			
Two-year institutions	0.0884	0.0436	0.0428
Doctorate-granting institution	-0.1279	0.0368	0.0005
SSS services are home-based	0.1300	0.0442	0.0033
SSS programs are blended	-0.0623	0.0430	0.1470
No SSS program at institution	-0.0024	0.0359	0.9467
Student attitudes			
Above average academic ability	0.1612	0.0290	0.0001
SSS services			
Number of hours: instr. courses	0.0008	0.0006	0.1765
Number of hours: profl tutoring	0.0110	0.0126	0.3847
Number of hours: peer tutoring	0.0053	0.0016	0.0013
Number of hours: profl counseling	-0.0014	0.0075	0.8527
Number of hours: peer counseling	-0.0120	0.0287	0.6760
Number of hours: labs	-0.0139	0.0034	0.0001
Number of hours: workshops	-0.0098	0.0076	0.1974
Number of hours: cultural events	0.0082	0.0114	0.4740
Number of hours: handicapped srvc	-0.0016	0.0041	0.6960
Non-SSS services			
Services for physically disabled	0.1461	0.0844	0.0837
Services for limited-English ability	-0.1061	0.0832	0.2022
Student orientation	-0.0550	0.0395	0.1643
College re-entrance counseling	-0.0873	0.0853	0.3058
Classrm instr--basic skills	-0.0809	0.0480	0.0917
Classrm instr--dvlpmntl English	0.0047	0.0543	0.9310
Classrm instr--dvlpmntl math	-0.0334	0.0485	0.4920
Cultural enrichment activities	0.1279	0.0377	0.0007
Referrals to agencies/resources	0.0306	0.0391	0.4342
Number of counseling sessions	-0.0056	0.0037	0.1266
Number of tutoring sessions	***	0.0020	0.9809
Dummy variables for missing data			
Dummy variable for missing SAT/ACT	0.2025	0.0476	0.0001
Missing data on first generation	-0.1402	0.0729	0.0545
Dummy variable for missing race	-0.3236	0.1285	0.0119
Dummy variable for missing income	-0.0222	0.0480	0.6446
Missing data for hours on school activities	0.0887	0.0855	0.2994
Missing data on student age	0.3556	0.1207	0.0032
Missing data on high school GPA	0.7314	0.1439	0.0001
Missing data on counseling - 91	-0.4013	0.0568	0.0001

R-square = 0.2281

*** Rounds to zero.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

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Table 7-3a. Regression analysis to predict third-year college GPAs

	Coefficient	Standard error	P-value
Intercept	1.3448	0.1383	0.0001
Demographics			
Age in 1991	0.0252	0.0033	0.0001
Black student	-0.3782	0.0445	0.0001
Hispanic student	-0.2300	0.0546	0.0001
American Indian student	-0.1704	0.1757	0.3320
Asian student	-0.1801	0.0794	0.0234
Student was female	0.1673	0.0350	0.0001
Academic background			
High school GPA	0.2505	0.0307	0.0001
Percentile on SAT/ACT	0.2516	0.0844	0.0029
Took any developmental course	-0.1851	0.0391	0.0001
SSS criteria			
No parental education beyond High School	-0.0271	0.0373	0.4670
Family income greater than $20,000	-0.0155	0.0391	0.6919
Institutional characteristics			
Two-year institutions	0.0221	0.0558	0.6926
Doctorate-granting institution	-0.0707	0.0429	0.0994
SSS services are home-based	0.0877	0.0545	0.1077
SSS programs are blended	-0.1218	0.0517	0.0187
No SSS program at institution	-0.0139	0.0430	0.7466
Student attitudes			
Above average academic ability	0.1349	0.0349	0.0001
SSS services			
Number of hours: instr. courses	0.0006	0.0007	0.3654
Number of hours: profl tutoring	0.0137	0.0155	0.3764
Number of hours: peer tutoring	0.0011	0.0019	0.5789
Number of hours: profl counseling	0.0063	0.0091	0.4905
Number of hours: peer counseling	0.0364	0.0337	0.2801
Number of hours: labs	-0.0079	0.0050	0.1113
Number of hours: workshops	-0.0118	0.0092	0.2015
Number of hours: cultural events	0.0146	0.0135	0.2787
Number of hours: handicapped srvc	0.0031	0.0043	0.4633
Non-SSS services			
Services for physically disabled	0.0425	0.1017	0.6761
Services for limited-English ability	-0.0366	0.1014	0.7180
Student orientation	-0.0109	0.0484	0.8226
College re-entrance counseling	0.0014	0.1040	0.9895
Classrm instr--basic skills	-0.0272	0.0587	0.6433
Classrm instr--dvlpmntl English	-0.0822	0.0666	0.2174
Classrm instr--dvlpmntl math	0.0092	0.0583	0.8743
Cultural enrichment activities	0.1046	0.0443	0.0183
Referrals to agencies/resources	0.0423	0.0471	0.3697
Number of counseling sessions	0.0041	0.0044	0.3503
Number of tutoring sessions	-0.0034	0.0023	0.1526
Dummy variables for missing data			
Dummy variable for missing SAT/ACT	-0.0144	0.0573	0.8013
Missing data on first generation	-0.0763	0.0888	0.3901
Dummy variable for missing race	-0.2725	0.1559	0.0807
Dummy variable for missing income	-0.1027	0.0582	0.0778
Missing data on student age	0.5630	0.1483	0.0002
Missing data on high school GPA	0.1564	0.1740	0.3687
Missing data on counseling - 91	-0.3640	0.0786	0.0001

R-square = 1946

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

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Table 7-4a. Regression analysis to predict cumulative third-year college GPAs for students who were still enrolled in the third year

	Coefficient	Standard error	P-value
Intercept	1.3983	0.0911	0.0001
Demographics			
Age in 1991	0.0228	0.0021	0.0001
Black student	-0.2698	0.0290	0.0001
Hispanic student	-0.1878	0.0353	0.0001
American Indian student	-0.0714	0.1143	0.5323
Asian student	-0.1177	0.0510	0.0210
Student was female	0.0887	0.0226	0.0001
Academic background			
High school GPA	0.2482	0.0199	0.0001
Percentile on SAT/ACT	0.2650	0.0542	0.0001
Hours on school activities	0.0021	0.0007	0.0020
Took any developmental course	-0.1355	0.0252	0.0001
SSS criteria			
No parental education beyond High School	-0.0104	0.0241	0.6647
Family income greater than $20,000	-0.0092	0.0252	0.7168
Institutional characteristics			
Two-year institutions	0.0500	0.0365	0.1705
Doctorate-granting institution	-0.0718	0.0276	0.0092
SSS services are home-based	0.1444	0.0353	0.0001
SSS programs are blended	-0.0941	0.0334	0.0049
No SSS program at institution	-0.0240	0.0276	0.3862
Student attitudes			
Above average academic ability	0.1444	0.0226	0.0001
Would attend free tutoring	-0.0728	0.0246	0.0031
SSS services			
Number of hours: instr. courses	0.0004	0.0005	0.4362
Number of hours: profl tutoring	0.0140	0.0104	0.1800
Number of hours: peer tutoring	0.0039	0.0012	0.0017
Number of hours: profl counseling	-0.0082	0.0060	0.1701
Number of hours: peer counseling	-0.0195	0.0216	0.3650
Number of hours: labs	-0.0024	0.0034	0.4790
Number of hours: workshops	-0.0034	0.0061	0.5720
Number of hours: cultural events	0.0124	0.0086	0.1488
Number of hours: handicapped srvc	-0.0002	0.0027	0.9368
Non-SSS services			
Services for physically disabled	0.0444	0.0653	0.4964
Services for limited-English ability	-0.1357	0.0652	0.0375
Student orientation	-0.0709	0.0313	0.0236
College re-entrance counseling	-0.0126	0.0686	0.8548
Classrm instr--basic skills	-0.0425	0.0379	0.2630
Classrm instr--dvlpmntl English	-0.0299	0.0431	0.4882
Classrm instr--dvlpmntl math	0.0262	0.0379	0.4885
Cultural enrichment activities	0.0934	0.0285	0.0011
Referrals to agencies/resources	0.0586	0.0305	0.0547
Number of counseling sessions	-0.0016	0.0029	0.5786
Number of tutoring sessions	-0.0010	0.0015	0.5127
Dummy variables for missing data			
Dummy variable for missing SAT/ACT	0.0891	0.0371	0.0164
Missing data on first generation	-0.0713	0.0575	0.2146
Dummy variable for missing race	-0.2487	0.1011	0.0140
Dummy variable for missing income	-0.0695	0.0375	0.0639
Missing data for hours on school activities	0.0670	0.0680	0.3244
Missing data on student age	0.4248	0.0955	0.0001
Missing data on high school GPA	0.4801	0.1158	0.0001
Missing data on counseling - 91	-0.1907	0.0514	0.0002

R-square = .3134

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-5a. Regression analysis to predict total credits earned in the first year of college

	Coefficient	Standard error	P-value
Intercept	-2.6162	1.5306	0.0875
Demographics			
Age in 1991	0.1503	0.0302	0.0001
Black student	-0.4384	0.3946	0.2667
Hispanic student	-1.4878	0.4968	0.0028
American Indian student	-2.1555	1.2646	0.0884
Asian student	-0.3558	0.7620	0.6406
Within 50 miles of home	-1.0304	0.3862	0.0077
Live in college housing or frat/sorority	1.3444	0.4181	0.0013
Student was full time	8.1579	0.5678	0.0001
Academic background			
High school GPA	2.9271	0.2634	0.0001
Percentile on SAT/ACT	2.0362	0.7764	0.0088
Hours on school activities	0.0647	0.0099	0.0001
Took any developmental course	-1.8152	0.3494	0.0001
SSS criteria			
No parental education beyond High School	0.1607	0.3298	0.6261
Family income greater than $20,000	0.5651	0.3455	0.1020
Institutional characteristics			
Two-year institutions	-0.9330	0.4559	0.0408
Doctorate-granting institution	-0.6824	0.4070	0.0936
SSS services are home-based	-0.6556	0.4773	0.1697
SSS services are blended	0.0886	0.4798	0.8535
No SSS program at institution	0.2467	0.3793	0.5155
Student attitudes			
Have major concern about ed. finances	-0.9925	0.3135	0.0016
Go places with school friends	0.8320	0.3241	0.0103
Able to complete college	2.5573	0.7357	0.0005
Once I start something, I finish it	1.4958	0.3559	0.0001
Feel comfortable on this campus	1.6071	0.3929	0.0001
Would attend free tutoring	-0.8487	0.3378	0.0120
SSS services			
Number of hours: instr. courses	-0.0013	0.0066	0.8404
Number of hours: profl tutoring	0.2275	0.1412	0.1073
Number of hours: peer tutoring	0.1103	0.0194	0.0001
Number of hours: profl counseling	-0.2067	0.0820	0.0118
Number of hours: peer counseling	-1.1266	0.3289	0.0006
Number of hours: labs	-0.0221	0.0350	0.5275
Number of hours: workshops	0.1841	0.0855	0.0313
Number of hours: cultural events	0.7641	0.1330	0.0001
Number of hours: handicapped srvc	-0.0280	0.0511	0.5841
Non-SSS services			
Services for physically disabled	0.2906	0.9331	0.7555
Services for limited-English ability	0.1900	0.9082	0.8343
Student orientation	0.4989	0.4190	0.2338
College re-entrance counseling	-2.8323	0.8162	0.0005
Classrm instr--basic skills	-0.8445	0.5160	0.1018
Classrm instr--dvlpmntl English	-0.1233	0.5879	0.8339
Classrm instr--dvlpmntl math	0.1894	0.5258	0.7188
Cultural enrichment activities	1.2067	0.4138	0.0036
Referrals to agencies/resources	0.4338	0.4211	0.3030
Number of counseling sessions	0.0097	0.0370	0.7932
Number of tutoring sessions	0.0141	0.0225	0.5295
Dummy variables for missing data			
Dummy variable for missing SAT/ACT	-0.4196	0.5007	0.4020
Missing data on first generation	-0.9575	0.8099	0.2372
Dummy variable for missing race	-1.5749	1.4302	0.2709
Dummy variable for missing income	0.3568	0.5161	0.4895
Missing data for hours on school activities	0.7846	0.9684	0.4179
Missing data on student age	2.3857	1.3841	0.0849
Missing data on high school GPA	4.8486	1.6561	0.0034
Missing data on counseling - 91	-3.3678	0.5747	0.0001

R-square = 0.2357

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

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Table 7-6a. Regression analysis to predict total credits earned in second year of college

	Coefficient	Standard error	P-value
Intercept	3.6821	1.3215	0.0054
Demographics			
Black student	-1.1511	0.4411	0.0091
Hispanic student	-2.2353	0.5334	0.0001
American Indian student	-6.6966	1.4805	0.0001
Asian student	-0.9476	0.7880	0.2293
Live in college housing or frat/sorority	1.5859	0.4044	0.0001
Student was full time	5.6495	0.6804	0.0001
Academic background			
High school GPA	3.0391	0.2926	0.0001
Percentile on SAT/ACT	3.2608	0.8442	0.0001
Hours on school activities	0.0576	0.0106	0.0001
Took any developmental course	-1.1929	0.3841	0.0019
SSS criteria			
No parental education beyond High School	0.5240	0.3608	0.1465
Family income greater than $20,000	-0.1801	0.3781	0.6338
Institutional characteristics			
Two-year institutions	-2.0859	0.5265	0.0001
Doctorate-granting institution	-0.9613	0.4368	0.0278
SSS services are home-based	-0.3309	0.5232	0.5271
SSS services are blended	-1.1004	0.5073	0.0302
No SSS program at institution	0.4906	0.4205	0.2434
Student attitudes			
Have major concern about ed. finances	-0.9369	0.3467	0.0069
Feel comfortable on this campus	1.5755	0.4471	0.0004
SSS services			
Number of hours: instr. courses	0.0111	0.0070	0.1123
Number of hours: profl tutoring	0.1672	0.1521	0.2717
Number of hours: peer tutoring	0.0818	0.0194	0.0001
Number of hours: profl counseling	-0.0715	0.0885	0.4189
Number of hours: peer counseling	-1.1547	0.3380	0.0006
Number of hours: labs	-0.1369	0.0394	0.0005
Number of hours: workshops	-0.1152	0.0908	0.2049
Number of hours: cultural events	0.5212	0.1341	0.0001
Number of hours: handicapped srvc	-0.1062	0.0480	0.0270
Non-SSS services			
Services for physically disabled	2.0293	1.0019	0.0429
Services for limited-English ability	-0.4472	0.9847	0.6497
Student orientation	0.5656	0.4662	0.2252
College re-entrance counseling	-2.8612	1.0138	0.0048
Classrm instr--basic skills	-0.6392	0.5639	0.2571
Classrm instr--dvlpmntl English	-0.2253	0.6403	0.7250
Classrm instr--dvlpmntl math	-0.0759	0.5707	0.8943
Cultural enrichment activities	1.1027	0.4420	0.0127
Referrals to agencies/resources	-0.2250	0.4607	0.6252
Number of counseling sessions	-0.0341	0.0428	0.4267
Number of tutoring sessions	-0.0110	0.0231	0.6336
Dummy variables for missing data			
Dummy variable for missing SAT/ACT	0.5700	0.5480	0.2983
Missing data on first generation	-1.5171	0.8904	0.0885
Dummy variable for missing race	-2.9890	1.4851	0.0442
Dummy variable for missing income	0.1826	0.5686	0.7481
Missing data for hours on school activities	2.8382	1.0693	0.0080
Missing data on high school GPA	10.4920	1.7624	0.0001
Missing data on counseling - 91	-4.0782	0.6721	0.0001

R-square = 0.2205

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

Table 7-7a. Regression analysis to predict total credits earned in third year of college

	Coefficient	Standard error	P-value
Intercept	11.7476	1.4148	0.0001
Demographics			
Black student	-2.5661	0.4921	0.0001
Hispanic student	-1.8632	0.6084	0.0022
American Indian student	-1.5535	1.9583	0.4277
Asian student	-1.0732	0.8837	0.2247
Live in college housing or frat/sorority	2.3288	0.4494	0.0001
Student was full time	4.2323	0.7930	0.0001
Academic background			
High school GPA	1.8239	0.3308	0.0001
Hours on school activities	0.0251	0.0117	0.0327
Took any developmental course	-1.1316	0.4271	0.0081
SSS criteria			
No parental education beyond High School	0.1495	0.4144	0.7183
Family income greater than $20,000	-0.5600	0.4359	0.1990
Institutional characteristics			
Two-year institutions	-6.0350	0.6022	0.0001
Doctorate-granting institution	-1.6393	0.4808	0.0007
SSS services are home-based	-0.3028	0.6082	0.6186
SSS services are blended	-0.5563	0.5787	0.3365
No SSS program at institution	1.3715	0.4787	0.0042
Student attitudes			
Have major concern about ed. finances	-1.2418	0.3973	0.0018
SSS services			
Number of hours: instr. courses	0.0013	0.0078	0.8665
Number of hours: profl tutoring	0.0089	0.1697	0.9582
Number of hours: peer tutoring	0.0562	0.0211	0.0079
Number of hours: profl counseling	-0.1956	0.1016	0.0542
Number of hours: peer counseling	-1.3403	0.3742	0.0003
Number of hours: labs	-0.0383	0.0555	0.4897
Number of hours: workshops	0.0556	0.1034	0.5911
Number of hours: cultural events	0.5950	0.1506	0.0001
Number of hours: handicapped srvc	-0.0907	0.0477	0.0575
Non-SSS services			
Services for physically disabled	1.5262	1.1356	0.1791
Services for limited-English ability	0.6266	1.1421	0.5833
Student orientation	1.1593	0.5432	0.0329
College re-entrance counseling	-0.2357	1.1762	0.8412
Classrm instr--basic skills	0.0638	0.6555	0.9225
Classrm instr--dvlpmntl English	-0.9518	0.7455	0.2018
Classrm instr--dvlpmntl math	-0.4476	0.6518	0.4923
Cultural enrichment activities	1.2424	0.4948	0.0121
Referrals to agencies/resources	-0.1293	0.5258	0.8057
Number of counseling sessions	0.0898	0.0488	0.0658
Number of tutoring sessions	-0.0488	0.0263	0.0637
Dummy variables for missing data			
Missing data on first generation	-1.1306	1.0284	0.2717
Dummy variable for missing race	0.3023	1.7049	0.8593
Dummy variable for missing income	-1.3873	0.6531	0.0338
Missing data for hours on school activities	1.3468	1.2531	0.2826
Missing data on high school GPA	3.0894	1.9926	0.1212
Missing data on counseling - 91	-3.7830	0.8827	0.0001

R-square = 0.2137

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

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Table 7-8a. Regression analysis to predict total credits earned after 3 years for students who were still enrolled in the third year

	Coefficient	Standard error	P-value
Intercept	34.4799	4.3615	0.0001
Demographics			
Age in 1991	0.2051	0.0925	0.0267
Black student	-4.8936	1.2224	0.0001
Hispanic student	-5.1924	1.5073	0.0006
American Indian student	-4.2442	4.8172	0.3784
Asian student	-3.9580	2.1789	0.0694
Live in college housing or frat/sorority	3.4218	1.1317	0.0025
Academic background			
Student was full time	18.5839	2.0150	0.0001
High school GPA	6.9204	0.8195	0.0001
Hours on school activities	0.1069	0.0292	0.0003
Took any developmental course	-5.2204	1.0537	0.0001
SSS criteria			
No parental education beyond High School	-0.1107	1.0251	0.9140
Family income greater than $20,000	-0.7894	1.0791	0.4645
Institutional characteristics			
Two-year institutions	-12.9028	1.5044	0.0001
Doctorate-granting institution	-2.7598	1.1848	0.0199
SSS services are home-based	-2.2666	1.5022	0.1315
SSS services are blended	-2.5526	1.4328	0.0749
No SSS program at institution	2.0750	1.1835	0.0797
Student attitudes			
Have major concern about ed. finances	-3.1976	0.9829	0.0012
Go places with school friends	2.0812	0.9808	0.0340
SSS services			
Number of hours: instr. courses	-0.0002	0.0192	0.9934
Number of hours: profl tutoring	0.1672	0.4190	0.6899
Number of hours: peer tutoring	0.2084	0.0524	0.0001
Number of hours: profl counseling	-0.3833	0.2505	0.1260
Number of hours: peer counseling	-4.0794	0.9222	0.0001
Number of hours: labs	-0.1371	0.1369	0.3169
Number of hours: workshops	0.3145	0.2549	0.2175
Number of hours: cultural events	1.4736	0.3707	0.0001
Number of hours: handicapped srvc	-0.3035	0.1174	0.0098
Non-SSS services			
Services for physically disabled	3.4526	2.8251	0.2218
Services for limited-English ability	0.3569	2.8210	0.8993
Student orientation	0.6695	1.3511	0.6203
College re-entrance counseling	-6.5751	2.8994	0.0234
Classrm instr--basic skills	-1.9831	1.6131	0.2191
Classrm instr--dvlpmntl English	-1.2667	1.8345	0.4900
Classrm instr--dvlpmntl math	-1.0480	1.6108	0.5154
Cultural enrichment activities	2.1046	1.2222	0.0852
Referrals to agencies/resources	-0.4094	1.2942	0.7518
Number of counseling sessions	0.1705	0.1201	0.1559
Number of tutoring sessions	-0.0566	0.0652	0.3851
Dummy variables for missing data			
Missing data on first generation	-2.4194	2.5581	0.3444
Dummy variable for missing race	-4.4304	4.1951	0.2910
Dummy variable for missing income	-2.7447	1.6098	0.0883
Missing data for hours on school activities	3.6623	3.1341	0.2427
Missing data on student age	1.3269	4.1584	0.7497
Missing data on high school GPA	12.0989	4.9539	0.0147
Missing data on counseling - 91	-7.6598	2.1977	0.0005

R-square = 0.2523

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS). *Longitudinal Study of Student Outcomes*, 1993-94

Table 7-9a. Logistic regression analysis to predict retention to the second year at the same institution

	Coefficient	Standard error	P-value	Odds ratio
Intercept	-3.7535	0.3488	0.0001	0.023
Demographics				
Black student	0.2582	0.0982	0.0085	1.295
Hispanic student	0.4343	0.1292	0.0008	1.544
American Indian student	-0.1900	0.3000	0.5265	0.827
Asian student	0.5657	0.2125	0.0078	1.761
Within 50 miles of home	0.3085	0.1002	0.0021	1.361
Live in college housing or frat/sorority	0.2290	0.1079	0.0338	1.257
Student was full time	0.4583	0.1370	0.0008	1.581
Academic background				
High school GPA	0.1435	0.0684	0.0358	1.154
GPA in 1991-92	0.9682	0.0507	0.0001	2.633
Took courses at other postsec inst.	0.3352	0.1059	0.0015	1.398
SSS criteria				
No parental education beyond High School	-0.1066	0.0845	0.2070	0.899
Family income greater than $20,000	-0.0470	0.0886	0.5959	0.954
Institutional characteristics				
Two-year institutions	-0.4228	0.1102	0.0001	0.655
Doctorate-granting institution	0.2373	0.1070	0.0265	1.268
SSS services are home-based	-0.2746	0.1229	0.0254	0.760
SSS services are blended	0.4775	0.1302	0.0002	1.612
No SSS program at institution	0.1401	0.0963	0.1454	1.150
Student attitudes				
Go places with school friends	0.2002	0.0824	0.0150	1.222
Above average academic ability	-0.1957	0.0816	0.0164	0.822
Have major concern about ed. finances	-0.3003	0.0799	0.0002	0.741
Able to complete college	0.5985	0.1784	0.0008	1.819
Once I start something, I finish it	0.2059	0.0891	0.0209	1.229
Feel comfortable on this campus	0.4526	0.0962	0.0001	1.572
SSS services				
Number of hours: instr. courses	0.0043	0.0018	0.0163	1.004
Number of hours: profl tutoring	-0.0101	0.0384	0.7917	0.990
Number of hours: peer tutoring	0.0157	0.0060	0.0084	1.016
Number of hours: profl counseling	-0.0272	0.0214	0.2028	0.973
Number of hours: peer counseling	0.0185	0.0926	0.8420	1.019
Number of hours: labs	0.0004	0.0090	0.9676	1.000
Number of hours: workshops	0.0660	0.0247	0.0075	1.068
Number of hours: cultural events	0.0341	0.0383	0.3737	1.035
Number of hours: handicapped srvc	0.0325	0.0308	0.2907	1.033
Non-SSS services				
Services for physically disabled	0.4126	0.2498	0.0987	1.511
Services for limited-English ability	-0.4891	0.2388	0.0406	1.613
Student orientation	0.0742	0.1059	0.4839	1.077
College re-entrance counseling	-0.5656	0.1947	0.0037	0.568
Classrm instr--basic skills	-0.0526	0.1317	0.6896	0.949
Classrm instr--dvlpmntl English	0.1857	0.1534	0.2262	1.204
Classrm instr--dvlpmntl math	0.0354	0.1355	0.7942	1.036
Cultural enrichment activities	0.0016	0.1102	0.9884	1.002
Referrals to agencies/resources	-0.2657	0.1091	0.0149	0.767
Number of counseling sessions	0.0043	0.0093	0.6426	0.996
Number of tutoring sessions	0.0172	0.0063	0.0059	1.017
Dummy variables for missing data				
Missing data on first generation	-0.1762	0.2052	0.3904	0.838
Dummy variable for missing race	0.0522	0.3630	0.8857	1.054
Dummy variable for missing income	-0.0522	0.1326	0.6936	0.949
Missing data on high school GPA	0.3413	0.4245	0.4214	1.407
Missing data on counseling - 91	-0.3607	0.1303	0.0056	0.697
Missing data in 1991-92 GPA	0.2670	0.3320	0.4212	1.306

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-10a. Logistic regression analysis to predict retention to the second year at the same institution, adjusted for indirect effects of SSS

	Coefficient	Standard error	P-value	Odds ratio
Intercept	-2.6278	0.3164	0.0001	0.072
Demographics				
Black student	-0.0656	0.0904	0.4679	0.936
Hispanic student	0.1780	0.1210	0.1412	1.195
American Indian student	-0.3511	0.2892	0.2248	0.704
Asian student	0.4534	0.2006	0.0238	1.574
Within 50 miles of home	0.2731	0.0943	0.0038	1.314
Live in college housing or frat/sorority	0.2715	0.1021	0.0078	1.312
Student was full time	0.4797	0.1223	0.0001	1.616
Academic background				
High school GPA	0.4408	0.0621	0.0001	1.554
Took courses at other postsec inst.	0.2420	0.0994	0.0149	1.274
SSS criteria				
No parental education beyond High School	-0.0430	0.0793	0.5872	0.958
Family income greater than $20,000	-0.0606	0.0830	0.4654	0.941
Institutional characteristics				
Two-year institutions	-0.1867	0.1011	0.0648	0.830
Doctorate-granting institution	0.2107	0.1008	0.0367	1.235
SSS services are home-based	-0.1054	0.1153	0.3606	0.900
SSS programs are blended	0.3875	0.1225	0.0016	1.473
No SSS program at institution	0.0626	0.0895	0.4844	1.065
Student attitudes				
Go places with school friends	0.0937	0.0777	0.2281	1.098
Above average academic ability	0.0432	0.0755	0.5675	1.044
Have major concern about ed. finances	-0.3243	0.0746	0.0001	0.723
Able to complete college	0.7066	0.1663	0.0001	2.027
Once I start something, I finish it	0.2887	0.0831	0.0005	1.335
Feel comfortable on this campus	0.5622	0.0895	0.0001	1.754
SSS services				
Number of hours: instr. courses	0.0043	0.0017	0.0116	1.004
Number of hours: profl tutoring	0.0220	0.0375	0.5573	1.022
Number of hours: peer tutoring	0.0244	0.0057	0.0001	1.025
Number of hours: profl counseling	-0.0458	0.0201	0.0229	0.955
Number of hours: peer counseling	-0.0111	0.0895	0.9016	0.989
Number of hours: labs	0.0036	0.0082	0.6616	1.004
Number of hours: workshops	0.0594	0.0229	0.0096	1.061
Number of hours: cultural events	0.0715	0.0376	0.0571	1.074
Number of hours: handicapped srvc	0.0427	0.0326	0.1908	1.044
Non-SSS services				
Services for physically disabled	0.5748	0.2334	0.0138	1.777
Services for limited-English ability	-0.5376	0.2220	0.0154	0.584
Student orientation	0.0075	0.0980	0.9390	1.008
College re-entrance counseling	-0.6194	0.1824	0.0007	0.538
Classrm instr--basic skills	-0.1264	0.1231	0.3047	0.881
Classrm instr--dvlpmntl English	0.1489	0.1430	0.2977	1.161
Classrm instr--dvlpmntl math	0.0806	0.1266	0.5240	1.084
Cultural enrichment activities	0.1093	0.1032	0.2895	1.115
Referrals to agencies/resources	-0.1366	0.1022	0.1811	0.872
Number of counseling sessions	-0.0033	0.0088	0.7099	0.997
Number of tutoring sessions	0.0205	0.0060	0.0006	1.021
Dummy variables for missing data				
Missing data on first generation	-0.2412	0.1916	0.2080	0.786
Dummy variable for missing race	0.0559	0.3534	0.8744	1.057
Dummy variable for missing income	-0.0566	0.1243	0.6490	0.945
Missing data on high school GPA	1.1120	0.3831	0.0037	3.040
Missing data on counseling - 91	-0.3976	0.1206	0.0010	0.672

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-11a. Structural equations model to predict retention to the second year at the same institution

	First-year GPA		Retention		Latent GPA	
	Coefficient	T-value	Coefficient	T-value	Coefficient	T-value
Intercept			-0.0429	-0.6613	0.6608	6.2338
Demographics						
Age					0.0273	10.8984
Black student			0.0181	0.9814	-0.2165	-6.4590
Hispanic student			0.0537	2.4326	-0.1405	-3.3135
American Indian student			-0.0493	-0.8996	-0.1876	-1.7250
Asian student			0.0811	2.4886	-0.0190	-0.2897
Student was female					0.0737	2.7476
Within 50 miles of home			0.0488	2.9704		
Live in college housing or frat/sorority			0.0375	2.1170		
Student was full time			0.0785	3.3505		
Academic background						
High school GPA			0.0485	3.0305	0.3309	14.2844
Percentile on SAT/ACT					0.1980	3.0004
GPA in 1991-92 (latent variable)	1.0000		0.0962	3.5005		
Took courses at other postsec inst.			0.0510	2.8023		
Hours on school activities					0.0048	5.7885
Work for pay while school in session					-0.0702	-2.7266
Took any developmental course					-0.1326	-4.4623
SSS criteria						
No parental education beyond High School			-0.0136	-0.9518	0.0338	1.1946
Family income greater than $20,000			-0.0097	-0.6513	0.0078	0.2615
Student attitudes						
Go places with school friends			0.0315	2.3087		
Above average academic ability					0.2242	8.3509
Have major concern about ed. finances			-0.0499	-3.7473		
Able to complete college			0.1171	3.7084		
Once I start something, I finish it			0.0351	2.3222		
Feel comfortable on this campus			0.0832	4.9803		
Expect harder time than most			-0.0793	-2.5866		
Would accept free tutoring					-0.1300	-4.5388
Institutional characteristics						
Two-year institutions			-0.0628	-3.2024	0.1488	3.9779
Doctorate-granting institution			0.0418	2.4270	-0.0010	-0.1452
SSS services are home-based	0.1598	3.9013	-0.0169	-0.7825		
SSS services are blended	-0.0504	-1.2158	0.0705	3.2376		
No SSS program at institution	-0.0787	-2.4351	0.0093	0.5440		
SSS services						
Number of hours: instr. courses	0.0006	1.0566	0.0008	2.6821		
Number of hours: profl tutoring	0.0233	1.9062	0.0025	0.3912		
Number of hours: peer tutoring	0.0094	5.6787	0.0038	4.3387		
Number of hours: profl counseling	-0.0195	-2.7472	-0.0079	-2.1087		
Number of hours: peer counseling	-0.0124	-0.4428	0.0007	0.0489		
Number of hours: labs	0.0036	1.1979	0.0006	0.4018		
Number of hours: workshops	-0.0010	-0.1452	0.0102	2.6367		
Number of hours: cultural events	0.0383	3.3618	0.0114	1.8982		
Number of hours: handicapped srvc	0.0042	0.9454	0.0023	0.9815		
Non-SSS services						
Services for physically disabled	0.1306	1.6208	0.0909	2.1404		
Services for limited-English ability	-0.0138	-0.1750	-0.0873	-2.1082		
Student orientation	-0.0206	-0.5727	0.0088	0.4666		
College re-entrance counseling	-0.2216	-3.1497	-0.1404	-3.7872		
Classrm instr--basic skills	-0.0712	-1.5972	-0.0190	-0.8114		
Classrm instr--dvlpmntl English	0.0109	0.2155	0.0298	1.1191		
Classrm instr--dvlpmntl math	0.0391	0.8611	0.0161	0.6775		
Cultural enrichment activities	0.1092	3.0604	0.0164	0.8713		
Referrals to agencies/resources	0.0830	2.2848	-0.0280	-1.4591		
Number of counseling sessions	-0.0011	-0.3296	-0.0007	-0.4230		
Number of tutoring sessions	0.0058	3.0155	0.0037	3.6044		
Dummy variables for missing data						
Missing data on first generation			-0.0391	-1.1149	-0.1308	-1.8764
Dummy variable for missing race			0.0026	0.0417	0.0728	0.5864
Dummy variable for missing income			-0.0079	-0.3541	0.0014	0.0313
Missing data on high school GPA			0.1378	1.7852	0.6579	4.5577
Missing data on counseling - 91	-0.2196	-4.4403	-0.0956	-3.9149		
Missing data in 1991-92 GPA			0.0249	0.5167		
Dummy variable for missing SAT/ACT					0.0300	0.7113
Missing data for hours on school activities					0.1348	1.6306
Missing data on student age					0.5830	5.0000
Missing data on work for pay in school					-0.0496	-0.3953
Missing data on expect harder time					0.0419	0.2108

NOTE: Blank fields are used if the indicated variables were not included in one or more parts of the model, or if the t-value is not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-12a. Logistic regression analysis to predict retention to the third year at the same institution

	Coefficient	Standard error	P-value	Odds ratio
Intercept	-2.9781	0.2106	0.0001	0.051
Demographics				
Black student	0.3416	0.1051	0.0012	1.407
Hispanic student	0.1282	0.1328	0.3341	1.137
American Indian student	-0.3445	0.3496	0.3245	0.709
Asian student	0.2044	0.2044	0.3173	1.227
Newly have children	-0.7721	0.2075	0.0002	0.462
Academic background				
Retained at same school in year 2	1.5574	0.1716	0.0001	4.746
GPA in 1992-93	0.8497	0.0546	0.0001	2.339
SSS criteria				
No parental education beyond High School	0.1378	0.0899	0.1252	1.148
Family income greater than $20,000	-0.1539	0.0941	0.1020	0.857
Institutional characteristics				
Two-year institutions	-0.7607	0.1126	0.0001	0.467
Doctorate-granting institution	0.3666	0.1107	0.0009	1.443
SSS services are home-based	-0.3228	0.1288	0.0122	0.724
SSS services are blended	0.3555	0.1290	0.0059	1.427
No SSS program at institution	0.2943	0.1049	0.0050	1.342
Student attitudes				
Feel comfortable on this campus	0.2100	0.1069	0.0494	1.234
SSS services				
Number of hours: instr. courses	0.0036	0.0018	0.0416	1.004
Number of hours: profl tutoring	-0.0248	0.0378	0.5118	0.975
Number of hours: peer tutoring	0.0091	0.0053	0.0858	1.009
Number of hours: profl counseling	-0.0329	0.0215	0.1264	0.968
Number of hours: peer counseling	0.0114	0.0878	0.8965	1.011
Number of hours: labs	-0.0163	0.0099	0.0982	0.984
Number of hours: workshops	0.0479	0.0232	0.0393	1.049
Number of hours: cultural events	0.0299	0.0343	0.3841	1.030
Number of hours: handicapped srvc	0.1642	0.0738	0.0261	1.178
Non-SSS services				
Services for physically disabled	0.1433	0.2575	0.5779	1.154
Services for limited-English ability	0.0103	0.2397	0.9657	1.010
Student orientation	0.1023	0.1138	0.3683	1.108
College re-entrance counseling	-0.0714	0.2309	0.7572	0.931
Classrm instr--basic skills	0.1466	0.1407	0.2974	1.158
Classrm instr--dvlpmntl English	-0.1529	0.1566	0.3290	0.858
Classrm instr--dvlpmntl math	0.2713	0.1418	0.0558	1.312
Cultural enrichment activities	0.0866	0.1142	0.4479	1.090
Referrals to agencies/resources	-0.0527	0.1158	0.6492	0.949
Number of counseling sessions	-0.0031	0.0102	0.7629	0.997
Number of tutoring sessions	-0.0037	0.0059	0.5273	0.996
Dummy variables for missing data				
Missing data on first generation	0.1361	0.2069	0.5109	1.146
Dummy variable for missing race	0.0810	0.3753	0.8291	1.084
Dummy variable for missing income	-0.0835	0.1406	0.5527	0.920
Missing data on counseling - 91	-0.8419	0.1477	0.0001	0.431

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-13a. Logistic regression analysis to predict retention to the third year at the same institution, adjusted for indirect effects of SSS

	Coefficient	Standard error	P-value	Odds ratio
Intercept	-1.8655	0.2151	0.0001	0.155
Demographics				
Black student	0.0669	0.0814	0.4112	1.069
Hispanic student	0.0148	0.1050	0.8877	1.015
American Indian student	-0.7911	0.2923	0.0068	0.453
Asian student	0.2091	0.1679	0.2132	1.233
Newly have children	-1.2517	0.1668	0.0001	0.286
Academic background				
High school GPA	0.5073	0.0560	0.0001	1.661
SSS criteria				
No parental education beyond High School	0.0779	0.0715	0.2759	1.081
Family income greater than $20,000	-0.1155	0.0746	0.1215	0.891
Institutional characteristics				
Two-year institutions	-0.5387	0.0896	0.0001	0.583
Doctorate-granting institution	0.2767	0.0877	0.0016	1.319
SSS services are home-based	-0.1792	0.1027	0.0810	0.836
SSS programs are blended	0.3615	0.1043	0.0005	1.435
No SSS program at institution	0.2205	0.0826	0.0076	1.247
Student attitudes				
Feel comfortable on this campus	0.5888	0.0836	0.0001	1.802
SSS services				
Number of hours: instr. courses	0.0046	0.0014	0.0014	1.005
Number of hours: profl tutoring	-0.0094	0.0309	0.7595	0.991
Number of hours: peer tutoring	0.0194	0.0044	0.0001	1.020
Number of hours: profl counseling	-0.0419	0.0178	0.0186	0.959
Number of hours: peer counseling	-0.0094	0.0721	0.8963	0.991
Number of hours: labs	-0.0180	0.0084	0.0316	0.982
Number of hours: workshops	0.0484	0.0188	0.0101	1.050
Number of hours: cultural events	0.0550	0.0297	0.0642	1.057
Number of hours: handicapped srvc	0.0974	0.0500	0.0514	1.102
Non-SSS services				
Services for physically disabled	0.4314	0.2053	0.0356	1.539
Services for limited-English ability	-0.3514	0.1984	0.0766	0.704
Student orientation	0.0748	0.0896	0.4040	1.078
College re-entrance counseling	-0.5307	0.1782	0.0029	0.588
Classrm instr--basic skills	-0.0631	0.1119	0.5725	0.939
Classrm instr--dvlpmntl English	-0.0441	0.1267	0.7277	0.957
Classrm instr--dvlpmntl math	0.2117	0.1138	0.0627	1.236
Cultural enrichment activities	0.1754	0.0903	0.0521	1.192
Referrals to agencies/resources	-0.0604	0.0917	0.5098	0.941
Number of counseling sessions	-0.0060	0.0080	0.4510	0.994
Number of tutoring sessions	0.0065	0.0049	0.1837	1.006
Dummy variables for missing data				
Missing data on first generation	-0.0834	0.1680	0.6196	0.920
Dummy variable for missing race	-0.0918	0.3047	0.7632	0.912
Dummy variable for missing income	-0.0638	0.1115	0.5672	0.938
Missing data on counseling - 91	-1.0078	0.1222	0.0001	0.365
Missing data on high school GPA	1.3410	0.3175	0.0001	3.823

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-14a. Structural equations model to predict retention to the third year at the same institution

	Second-year GPA		Retention		Latent GPA	
	Coefficient	T-value	Coefficient	T-value	Coefficient	T-value
Intercept			-2.1961	-46.7403	1.8530	31.2718
Demographics						
Age					0.0070	5.7975
Black student			0.4213	14.8254	-0.3651	-14.3825
Hispanic student			0.3016	8.2280	-0.2595	-7.9978
American Indian student			0.4826	4.9848	-0.6273	-7.3548
Asian student			0.2226	3.8846	-0.1624	-3.2026
Female with new child			-0.2400	-7.0140		
Student was female					0.0379	2.8085
Academic background						
High school GPA					0.1588	13.9486
Percentile on SAT/ACT					0.1910	5.7391
GPA in 1992-93 (latent variable)	1.0000		1.0000			
Hours on school activities					0.0021	5.1821
Took any developmental course					-0.0665	-4.4900
SSS criteria						
No parental education beyond High School			0.0093	0.3703	0.0088	0.3978
Family income greater than $20,000			-0.0438	-1.6782	0.0243	1.0536
Student attitudes						
Above average academic ability					0.0772	5.7945
Feel comfortable on this campus			0.0995	5.4232		
Institutional characteristics						
Two-year institutions			-0.2608	-8.3598	0.1360	4.7803
Doctorate-granting institution			0.1284	4.2091	-0.0935	-3.4660
SSS services are home-based	0.0791	2.5062	-0.0156	-0.6779		
SSS services are blended	-0.0256	-0.8083	0.0711	3.0751		
No SSS program at institution	0.0066	0.2587	0.0410	2.2030		
SSS services						
Number of hours: instr. courses	0.0005	1.0467	0.0012	3.8530		
Number of hours: profl tutoring	0.0166	1.7603	-0.0047	-0.6848		
Number of hours: peer tutoring	0.0052	4.1160	0.0043	4.6768		
Number of hours: profl counseling	-0.0044	-0.8018	-0.0078	-1.9687		
Number of hours: peer counseling	-0.0306	-1.4103	0.0078	0.4950		
Number of hours: labs	-0.0134	-5.8825	-0.0033	-2.0116		
Number of hours: workshops	-0.0113	-1.9732	0.0123	2.9537		
Number of hours: cultural events	0.0215	2.3999	0.0045	0.6928		
Number of hours: handicapped srvc	-0.0002	-0.0589	0.0048	1.9157		
Non-SSS services						
Services for physically disabled	0.1319	2.1346	0.0924	2.0562		
Services for limited-English ability	-0.0940	-1.5645	-0.0679	-1.5511		
Student orientation	-0.0730	-2.6269	0.0181	0.8943		
College re-entrance counseling	-0.0559	-1.0389	-0.1232	-3.1515		
Classrm instr--basic skills	-0.1066	-3.0851	0.0023	0.0934		
Classrm instr--dvlpmntl English	-0.0424	-1.0867	0.0203	0.7162		
Classrm instr--dvlpmntl math	-0.0631	-1.7992	0.0670	2.6215		
Cultural enrichment activities	0.1729	6.2670	0.0053	0.2644		
Referrals to agencies/resources	0.0413	1.4606	-0.0217	-1.0569		
Number of counseling sessions	-0.0052	-2.0456	-0.0025	-1.3750		
Number of tutoring sessions	-0.0010	-0.6369	0.0020	1.8711		
Dummy variables for missing data						
Dummy variable for missing SAT/ACT					0.0621	2.9412
Missing data on first generation			0.1230	2.1227	-0.1259	-2.4619
Dummy variable for missing race			0.3307	3.1313	-0.3512	-3.7753
Dummy variable for missing income			0.0223	0.5708	-0.0339	-0.9858
Missing data for hours on school activities					0.0348	0.9309
Missing data on student age					0.1244	2.2488
Missing data on high school GPA					0.3976	6.2714
Missing data on counseling - 91	-0.3468	-9.5007	-0.2459	-9.0100		

NOTE: Blank fields are used if the indicated variables were not included in one or more parts of the model, or if the t-value is not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

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Table 7-15a. Logistic regression analysis to predict retention to the third year at any institution

	Coefficient	Standard error	P-value	Odds ratio
Intercept	-0.9166	0.2557	0.0003	0.400
Demographics				
Black student	0.1753	0.1134	0.1222	1.192
Hispanic student	-0.0431	0.1478	0.7704	0.958
American Indian student	0.1348	0.3517	0.7015	1.144
Asian student	0.4777	0.2632	0.0695	1.612
Newly have children	-0.7800	0.1716	0.0001	0.458
Academic background				
GPA in 1992-93	0.9276	0.0398	0.0001	2.528
SSS criteria				
No parental education beyond High School	-0.2713	0.1023	0.0080	0.762
Family income greater than $20,000	0.0939	0.1049	0.3706	1.098
Institutional characteristics				
Two-year institutions	-0.6795	0.1187	0.0001	0.507
Doctorate-granting institution	0.0001	0.1302	0.9995	1.000
SSS services are home-based	0.1612	0.1485	0.2776	1.175
SSS services are blended	0.3427	0.1535	0.0255	1.409
No SSS program at institution	0.2691	0.1167	0.0211	1.309
Student attitudes				
Above average academic ability	0.2204	0.0948	0.0202	1.247
Go places with school friends	0.2521	0.0974	0.0096	1.287
Able to complete college	0.6570	0.1939	0.0007	1.929
SSS services				
Number of hours: instr. courses	0.0007	0.0021	0.7295	1.001
Number of hours: profl tutoring	0.0653	0.0492	0.1842	1.068
Number of hours: peer tutoring	0.0114	0.0066	0.0814	1.012
Number of hours: profl counseling	-0.0402	0.0240	0.0941	0.961
Number of hours: peer counseling	-0.0380	0.1088	0.7272	0.963
Number of hours: labs	-0.0173	0.0093	0.0630	0.983
Number of hours: workshops	-0.0105	0.0267	0.6949	0.990
Number of hours: cultural events	0.0549	0.0493	0.2650	1.056
Number of hours: handicapped srvc	0.4100	0.3324	0.2174	1.507
Non-SSS services				
Services for physically disabled	0.0271	0.2992	0.9279	1.027
Services for limited-English ability	0.1550	0.2764	0.5749	1.168
Student orientation	0.3585	0.1202	0.0029	1.431
College re-entrance counseling	0.1487	0.2221	0.5033	1.160
Classrm instr--basic skills	0.1784	0.1561	0.2531	1.195
Classrm instr--dvlpmntl English	-0.1126	0.1729	0.5149	0.893
Classrm instr--dvlpmntl math	-0.0577	0.1547	0.7090	0.944
Cultural enrichment activities	0.0782	0.1332	0.5573	1.081
Referrals to agencies/resources	0.1406	0.1321	0.2870	1.151
Number of counseling sessions	-0.0107	0.0101	0.2894	0.989
Number of tutoring sessions	0.0083	0.0072	0.2476	1.008
Dummy variables for missing data				
Missing data on first generation	-0.1803	0.2350	0.4429	0.835
Dummy variable for missing race	-0.2441	0.4042	0.5458	0.783
Dummy variable for missing income	0.1173	0.1611	0.4666	1.124

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Table 7-16a. Logistic regression analysis to predict retention to the third year at any institution, adjusted for indirect effects of SSS

	Coefficient	Standard error	P-value	Odds ratio
Intercept	-1.1707	0.2921	0.0001	0.310
Demographics				
Black student	0.0430	0.1029	0.6758	1.044
Hispanic student	-0.1027	0.1336	0.4423	0.902
American Indian student	-0.3042	0.3256	0.3503	0.738
Asian student	0.4860	0.2466	0.0488	1.626
Newly have children	-1.2416	0.1562	0.0001	0.289
Academic background				
High school GPA	0.4612	0.0700	0.0001	1.586
SSS criteria				
No parental education beyond High School	-0.2361	0.0931	0.0112	0.790
Family income greater than $20,000	0.0211	0.0947	0.8238	1.021
Institutional characteristics				
Two-year institutions	-0.5676	0.1069	0.0001	0.567
Doctorate-granting institution	0.0286	0.1193	0.8103	1.029
SSS services are home-based	0.1262	0.1354	0.3513	1.135
SSS programs are blended	0.3578	0.1402	0.0107	1.430
No SSS program at institution	0.2508	0.1053	0.0172	1.285
Student attitudes				
Above average academic ability	0.3028	0.0868	0.0005	1.354
Go places with school friends	0.2517	0.0890	0.0047	1.286
Able to complete college	0.9183	0.1727	0.0001	2.505
SSS services				
Number of hours: instr. courses	0.0028	0.0019	0.1486	1.003
Number of hours: profl tutoring	0.0849	0.0496	0.0872	1.089
Number of hours: peer tutoring	0.0222	0.0061	0.0003	1.022
Number of hours: profl counseling	-0.0481	0.0214	0.0247	0.953
Number of hours: peer counseling	-0.0362	0.1033	0.7256	0.964
Number of hours: labs	-0.0196	0.0082	0.0174	0.981
Number of hours: workshops	0.0060	0.0244	0.8046	1.006
Number of hours: cultural events	0.0715	0.0461	0.1206	1.074
Number of hours: handicapped srvc	0.4079	0.2995	0.1731	1.504
Non-SSS services				
Services for physically disabled	0.4208	0.2664	0.1142	1.523
Services for limited-English ability	-0.1695	0.2541	0.5047	0.844
Student orientation	0.3084	0.1062	0.0037	1.361
College re-entrance counseling	-0.2065	0.2038	0.3110	0.813
Classrm instr--basic skills	0.0441	0.1416	0.7552	1.045
Classrm instr--dvlpmntl English	-0.0033	0.1575	0.9833	0.997
Classrm instr--dvlpmntl math	0.0281	0.1405	0.8413	1.029
Cultural enrichment activities	0.1162	0.1205	0.3350	1.123
Referrals to agencies/resources	0.0810	0.1204	0.5008	1.084
Number of counseling sessions	-0.0151	0.0092	0.0998	0.985
Number of tutoring sessions	0.0146	0.0066	0.0276	1.015
Dummy variables for missing data				
Missing data on high school GPA	0.9533	0.3871	0.0138	2.594
Missing data on first generation	-0.2334	0.2140	0.2754	0.792
Dummy variable for missing race	-0.3627	0.3597	0.3134	0.696
Dummy variable for missing income	0.0897	0.1455	0.5377	1.094

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

Table 7-17a. Structural equations model to predict retention to the third year at any institution

	Second-year GPA		Retention		Latent GPA	
	Coefficient	T-value	Coefficient	T-value	Coefficient	T-value
Intercept			-1.9371	-35.7400	2.0732	36.2885
Demographics						
Age					0.0035	3.1967
Black student			0.4193	14.5851	-0.3948	-15.0263
Hispanic student			0.2863	7.7860	-0.2772	-8.2972
American Indian student			0.6473	6.5615	-0.6823	-7.6396
Asian student			0.2099	3.6751	-0.1583	-3.0526
Female with new child			-0.2286	-8.1051		
Student was female					0.0482	4.1190
Academic background						
High school GPA					0.1129	11.3715
Percentile on SAT/ACT					0.0626	2.1874
GPA in 1991-92 (latent variable)	1.0000		1.0000			
Hours on school activities					0.0018	5.0573
Took any developmental course					-0.0789	-6.3148
SSS criteria						
No parental education beyond High School			-0.0366	-1.4558	0.0056	0.2474
Family income greater than $20,000			-0.0033	-0.1245	0.0119	0.5023
Student attitudes						
Go places with school friends			0.0327	2.5426		
Able to complete college			0.1616	5.3898		
Above average academic ability			-0.2521	-10.9109	0.2622	12.4261
Institutional characteristics						
Two-year institutions			-0.2261	-7.0804	0.1463	4.9428
Doctorate-granting institution			0.0717	2.3614	-0.0914	-3.3159
SSS services are home-based	0.0637	1.9485	0.0233	1.1992		
SSS services are blended	-0.0085	-0.2586	0.0409	2.1072		
No SSS program at institution	-0.0098	-0.3725	0.0234	1.5000		
SSS services						
Number of hours: instr. courses	0.0004	0.8267	0.0005	1.8028		
Number of hours: profl tutoring	0.0207	2.1670	0.0071	1.2650		
Number of hours: peer tutoring	0.0055	4.2767	0.0030	3.9215		
Number of hours: profl counseling	-0.0038	-0.6665	-0.0040	-1.2060		
Number of hours: peer counseling	-0.0430	-1.9154	-0.0006	-0.0457		
Number of hours: labs	-0.0118	-4.8762	-0.0044	-3.1084		
Number of hours: workshops	-0.0110	-1.8893	0.0032	0.9401		
Number of hours: cultural events	0.0174	1.9061	0.0020	0.3777		
Number of hours: handicapped srvc	-0.0007	-0.1934	0.0017	0.8185		
Non-SSS services						
Services for physically disabled	0.1189	1.8443	0.0697	1.8329		
Services for limited-English ability	-0.1056	-1.7035	-0.0220	-0.6009		
Student orientation	-0.0997	-3.4359	0.0467	2.7111		
College re-entrance counseling	-0.0419	-0.7502	-0.0324	-0.9826		
Classrm instr--basic skills	-0.0979	-2.7583	0.0154	0.7382		
Classrm instr--dvlpmntl English	-0.0392	-0.9729	0.0208	0.8765		
Classrm instr--dvlpmntl math	-0.0500	-1.3916	0.0169	0.7949		
Cultural enrichment activities	0.1775	6.2739	-0.0062	-0.3688		
Referrals to agencies/resources	0.0337	1.1627	0.0069	0.4062		
Number of counseling sessions	-0.0055	-2.1949	-0.0022	-1.4670		
Number of tutoring sessions	-0.0011	-0.7273	0.0026	2.9292		
Dummy variables for missing data						
Dummy variable for missing SAT/ACT					-0.0249	-1.3553
Missing data on first generation			0.0388	0.6376	-0.0699	-1.2685
Dummy variable for missing race			0.3434	3.3152	-0.3912	-4.1697
Dummy variable for missing income			0.0789	1.9715	-0.0615	-1.6984
Missing data for hours on school activities					0.0440	1.2974
Missing data on student age					0.1131	2.3303
Missing data on high school GPA					0.2626	4.5361
Missing data on counseling - 91	-0.1006	-1.6031	0.1548	4.1399		

NOTE: Blank fields are used if the indicated variables were not included in one or more parts of the model, or if the t-value is not applicable.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

8. SPECIAL TOPICS

HIGHLIGHTS

- The effectiveness of supplemental services was not limited to services offered in the first year. Some services offered in the second and third years also had positive and statistically significant effects on student outcomes. However, no data are available on whether these services were provided through SSS or through other sources.

  - The receipt of counseling was associated with increased GPAs and credits earned for the year the service was received, and retention increased to the next year, although no measure yet exists of retention to the fourth year. The only outcome measure not showing positive and statistically significant effects for counseling was the third-year cumulative number of credits earned.
  - Participation in cultural events was associated with improved student outcomes for every measure but the third-year cumulative GPA.
  - Tutoring was associated with an increased number of credits earned in the second year and with increased retention to the third year.
  - Services for the handicapped were associated with increased retention to the third year at any higher education institution.

- The effects of SSS generally appeared consistent across different subgroups of students. To the extent that subgroups showed different effects from SSS, those differences appeared to be due to differences in the subgroups' participation in SSS rather than to differences in the effects of particular services for those subgroups. The most systematic pattern was that students who were more disadvantaged tended to participate more, and thus experienced greater effects through SSS participation.

This chapter extends the analysis of the longitudinal study by looking at two special topics: the effects of supplemental services received after the freshman year, and differences among various groups of SSS students in the outcomes that they experienced from SSS participation. The student outcomes measured used are the same as those used in chapter 7: college GPAs, total credits earned, and retention in higher education.

SERVICES RECEIVED AFTER THE FIRST YEAR

The preceding chapter focused on SSS services received during the first year because that is the major period in which the SSS programs typically provided services. However, some SSS programs did provide services in later years, and the effectiveness of such services has implications both for measuring the overall effectiveness of SSS and for policymakers who wish to make the SSS program maximally effective. This section therefore examines services received after the first year. It is based on regression equations similar to those presented in chapter 7, but modified to include measures of second- and third-year services.

Unfortunately, the data on second- and third-year services are not as detailed as those collected on SSS first-year services. In order to limit the burden on cooperating institutions, the SSS programs were not asked to provide detailed service records beyond the first year, so that only the students' self-reports are available for the subsequent years.[1] The single most important implication of this difference in data collection is that the student self-reports did not distinguish between SSS services and non-SSS services; therefore, this analysis is focused on the question of whether later-year services affect student outcomes, rather than on attempting to measure the effect of SSS services. A second implication is that only four measures of services are available—tutoring, counseling, services for disabled students, and participation in cultural events—rather than nine measures as in the first-year analysis. Finally, only the measures of tutoring and counseling included data on the amounts of services that were received and when the services were received; for the remaining measures, it is not possible to distinguish between services received in the second year and those received in the third year, and sometimes it is not possible to distinguish between services in the first year and those in later years.[2] For this reason, the measures of cultural events and handicapped services are more general in nature.

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[1] The first-year data on services for non-SSS students, which also were available only through self-reports, were largely consistent with the SSS service data in terms of the types of services that showed statistically significant effects.

Unlike the analysis in chapter 7, which estimates the mean effect of services both for all students (including those who did not participate in the specified service) and for students receiving the service, the figures here present only estimates for students receiving the service. In chapter 7 the purpose of calculating a mean for all SSS students was to estimate overall program effects for SSS; by contrast, since the second- and third-year data do not distinguish between services received through SSS and those received through other sources, the calculation of an overall mean would represent the overall effect of a diverse national system of higher education that sometimes provides a service and sometimes does not—a concept that does not seem particularly useful. The most meaningful estimates are the impacts of the services on the students who received them.

Effects of Second- and Third-Year Services on GPA

Figure 8-1 summarizes the estimated effects of the second- and third-year services on students' GPAs. Two of the four services did show positive and statistically effects: counseling and cultural events. Counseling in the second year was associated with an average increase of 0.03 in the second-year GPAs among students who received the service. Counseling in the third year was associated with average increases among all students of 0.06 in the third-year GPAs and 0.04 in the third-year cumulative GPAs. Participation in cultural events was associated with a 0.08 increase for both the second- and third-year GPAs. The average total effect among students who received at least one of these services was an increase of 0.07 in the second-year GPA, and 0.10 in the third-year GPA.[3]

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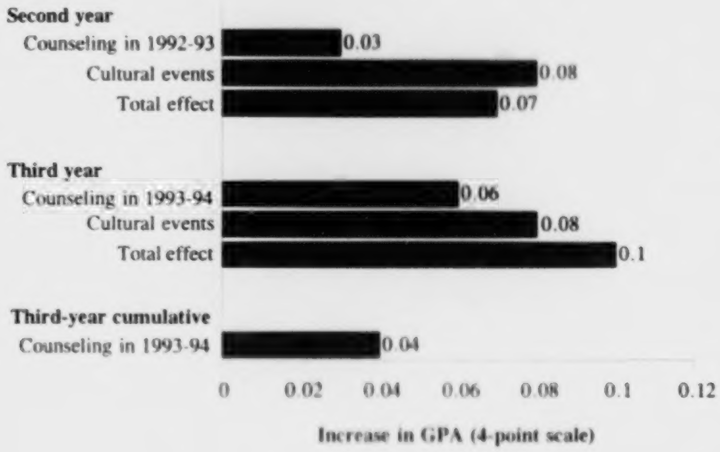
[2] Students were asked the amount of tutoring and counseling received over six separate periods (fall/winter 1991-92, spring 1992, fall/winter 1992-93, spring 1993, fall/winter 1993-94, spring 1994) using the following categories: none, once or twice a term, monthly, biweekly or weekly, and more than once a week. These responses were recoded to estimate the approximate number of times that tutoring and counseling were received over an academic year. Measures of the other two services (handicapped services and cultural events) are based on students' reports whether they received the services at any time in the first 3 years. For those students who indicated in the followup questionnaire that they received one of the services, but for whom neither the baseline questionnaire nor the SSS service records indicated the service was received in the first year, the logical conclusion is that the service was received in the second year, the third year, or both. On the other hand, for students who did receive the service in the first year, no data are available on whether the service was received *after* the first year. Given the persisting nature of most disabilities, handicapped services were probably received in each of the years. The situation for cultural events is less clear, but since 20 percent of all students newly indicated that they had participated in cultural events, the variable was largely measuring services received after the first year. Further, students who participated in cultural events in the first year were probably likely to continue their participation in later years, and institutions that offered activities for first-year students were probably more likely than other institutions to offer them in later years. Thus, though the measures of handicapped services and cultural events are imprecise, it seems more accurate to assume that students who responded positively did participate in the second or third years than to assume that their participation was limited to the first year.

Figure 8-1
Estimated average effects of second- and third-year services on GPAs of students receiving the services



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Effects of Second- and Third-Year Services on Total Credits Earned

Figure 8-2 displays the average estimated effects of second- and third-year services on the total number of credits earned. As in the analysis of students' GPAs, counseling and cultural events showed positive and statistically significant effects on the number of credits earned; in addition, tutoring also showed positive and statistically significant effects. Counseling in the second year was associated with a mean 0.51 increase in the number of credits earned in the second year, and counseling in the third year was associated with a 0.79 increase in the credits earned in the third year. Participation in cultural events was associated with an increased number of credits earned for all three time periods: the second year, an increase of 1.53; the third year, 1.64; and the third-year cumulative total, 4.32. Tutoring in the second year was associated with a mean increase of 0.86 credits in the second year. Finally, allowing for the fact that a student may have received multiple services, the total effect among students who received at least one of the services was an increase of 1.49 in the credits earned in the second year, and 1.64 in the credits earned in the third year.

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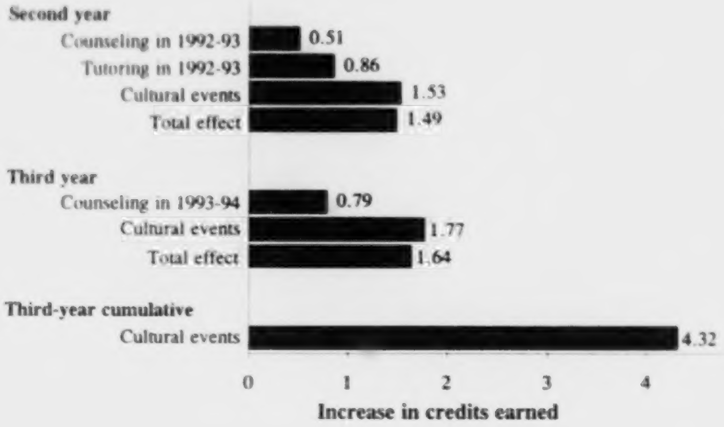
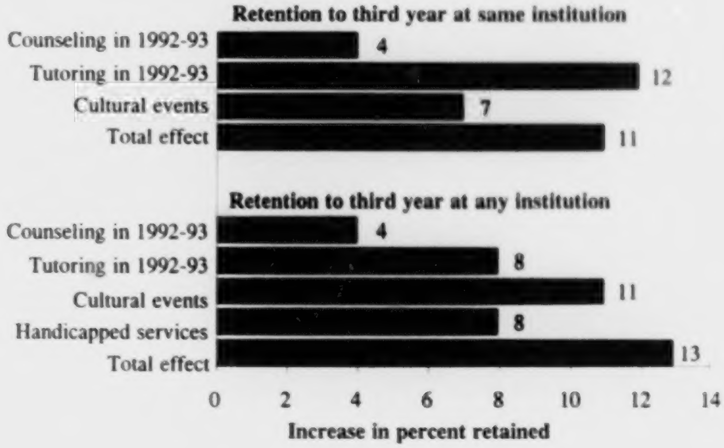
[3] For the third-year cumulative GPA, only one service was statistically significant. Thus, the average total effect was the same as the effect for counseling in the third year (0.04).

Figure 8-2
Estimated average effects of second- and third-year services on total credits earned by students receiving the services



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Figure 8-3
Estimated average effects of second- and third-year services on retention of students receiving the services



SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

Effects of Second-Year Services on Retention

Figure 8-3 displays the average increases in retention to the third year that were associated with the receipt of second-year services. Three of the four services (counseling, tutoring, and cultural events) showed positive and statistically significant effects on retention at the same institution, and all four services (i.e., the original three plus handicapped services) showed positive and statistically significant effects on retention at any institution. The receipt of counseling was associated with an increase of 4 percentage points in retention both at the same institution and at any higher education institution. Tutoring was associated with an average increase of 12 percentage points in the retention rate at the same institution and 8 percentage points at any institution. Participation in cultural events was associated with a 7 percentage point increase at the same institution and 11 percentage points at any institution. Services for the handicapped did not show a statistically significant effect on retention at the same institution, but were associated with an 8 percentage point increase in retention at any institution. Finally, summing the effects for those students who received multiple services, the total effect was a mean increase of 11 percentage points in retention at the same institution and of 13 percentage points in retention at any institution.

Summary and Interpretation

These data indicate that services after the first year can be helpful to students for each of the three student outcomes that were examined. The services that were most consistently related to improved student outcomes were counseling and cultural events, both of which showed positive and statistically significant effects for essentially all of the outcome measures that were used.[4] Further, tutoring showed significant effects on retention and the number of credits earned in the second year. Handicapped services showed a significant effect only on retention to the third year at any institution.

It is interesting to compare the results for second- and third-year services with those for first-year services. The single service that most stood out in the first-year service analysis was peer tutoring, which affected all three student outcomes. In contrast, however, while second-year tutoring did show effects on retention to the third year and on the number of credits earned in the second year, second-year tutoring failed to show an effect on GPAs, and third-year tutoring showed no effect on any of the outcomes.[5] One possibility is that the value of tutoring decreases over time; while it initially helps students to overcome their initial disadvantages (e.g., by providing help with study habits and by making up for deficits in skills), once the needed skills and habits have been learned there may no longer be a need for additional tutoring. Another explanation may be that with fewer students participating in tutoring in later years (only 22 percent in the second year and 14 percent in the third), statistical significance was harder to attain. These two alternative explanations do not necessarily conflict since if tutoring is less needed in later years, the number of participants will also decline.

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[4] The only exceptions were that cultural events failed to show an effect on third-year cumulative GPAs, and counseling failed to show an effect on the third-year cumulative number of credits earned

[5] However, data are not yet available to measuring the effect of third-year tutoring on retention to the fourth year

Another notable difference is that second- and third-year counseling showed positive and statistically significant effects for each of the three outcomes, but first-year counseling showed no such effects. One reason for this may be that counseling was allocated in a different manner in the later years: SSS professional counseling in the first year was often initiated if students were in academic trouble, so that counseling was statistically associated with poor student outcomes. In later years, there may not have been a similar negative bias. Further, the first-year analysis suggested that counseling may only have helped students who also received academic assistance (e.g., peer tutoring), while many SSS students received counseling alone. By the second and third years, the need for academic assistance may have been considerably lower, and counseling may have been sufficient to help students with the issues that were important at those times. A third difference between first-year counseling and counseling in later years was that there was some change in the nature of counseling provided: the receipt of career counseling increased from 8 percent in the first year to 28 percent in the first 3 years, and the receipt of financial aid counseling increased from 19 percent to 36 percent. Thus, it could be that this different mix of counseling was more useful than the mix provided in the first year. Finally, the fact that students' self-reports were used may have created a bias if students only reported counseling that was meaningful and effective (as perceived by the students), while they may have forgotten to report counseling if it seemed of little consequence at the time. There did seem to be some underreporting of counseling; for example, only 55 percent of SSS students reported receiving academic counseling at some time over the first 3 years, even though SSS service records show that 60 percent received such counseling in the first year alone. Thus, if students only remembered and reported the counseling that made a difference, the measured effect of counseling would be higher than if all counseling were included.

The consistent importance of cultural events in later years also stands out despite the weakness of the measure that was available. Cultural events seemed to be even more important in later years than in the first year, though this may be a result of the greater participation in cultural events after the freshman year (and thus a greater number of cases for establishing statistical significance), rather than a real change in the value of such participation. Because the direction of causality is especially an issue for cultural events (did students become integrated through attending cultural events, or was their attendance a sign of integration?), the interpretation of these data is more problematic than for other supplemental services, which generally were received most by the most disadvantaged students; however, in either case the finding seems to reinforce the conclusion in chapter 7 that nonacademic needs as well as academic needs must be addressed. Cultural events are not necessarily the only way of encouraging greater integration into the campus life, but the findings support the importance of such integration for improving student outcomes.

A final interesting difference between the findings for first-year services and those for later-year services is that the first-year services showed a greater effect on retention at the same institution than on retention at any higher education institution, while services in later year showed a pattern that was more mixed: tutoring appeared to show a greater effect on retention at the same institution, but cultural events appeared to show a greater effect on retention at any institution, with the total effect being marginally greater for retention at any institution. Given the mixed pattern of results for later-year services, one should be wary of reading too much into the data. Also, since the data were of much higher quality for the analysis of first-year services (the measures of participation were not dependent on students' self-reports, there was no ambiguity about the year in which the service was received, and the measures included the amount of participation rather than simply being a dichotomous measure of participation), to the degree that the findings differ, the first-year service analysis appears more reliable. However, the findings on later-year services do provide some indication that the effects of services on retention at any institution should not be discounted and may even be understated in chapter 7.

DIFFERENCES AMONG STUDENTS IN THE IMPACT OF SSS

An important question for program administrators is whether SSS affects some types of students differently than others. If it does, it may be that the targeting of SSS might be changed in order to focus on those students most likely to be helped; on the other hand, such a difference might also be a sign that SSS programs have a deficiency in how they attempt to meet the needs of some students (e.g., SSS might lack adequate role models for one racial/ethnic group).

There are two ways in which SSS might produce different outcomes for different groups of students. The first is if some services (at least, as currently administered) are more effective with some groups than others, so that two students could receive the same services but experience different effects. The second way is if different groups of students have different patterns of participation, so that some groups might participate more heavily or participate in different services. Given that the analysis in chapter 7 suggests that the amount of services received is important, and that some services appear more clearly effective than others, such differences in participation could also lead to differences in outcomes. This section reviews some general tests of differential outcomes among different groups of students and then examines both possible sources of differential outcomes for SSS participants to see which best explain any differences that have been found. Since the greatest effects of SSS participation generally occurred in the first year, this analysis focuses on the first-year outcomes with respect to GPAs, credits earned, and retention.

Differences in the Effects of SSS

To test for differences among groups of SSS students, a relatively simple initial method is to perform an overall test of the effects of SSS among different groups, treating SSS participation as a single dichotomous variable within a regression analysis that adjusts for student characteristics. By performing the test in this way, one can avoid prejudging whether the differences appear because SSS services affect different people in different ways, or because different groups have different patterns of participation. This method also makes it more likely that the groups being examined will be reasonably large in size. Otherwise, if relatively few students received a particular service and relatively few students fell in a particular category, the results might not be statistically significant simply because of the small number of cases available for analysis.

Table 8-1 presents the estimated performance of students with and without SSS participation, adjusting for student characteristics. It shows that while some groups were more advantaged than other groups (i.e., so that relatively strong student outcomes would be expected even without SSS participation), the impact of SSS was generally consistent: SSS showed positive and statistically significant effects for almost every group, and the magnitude of the increase provided by SSS participation was roughly similar across groups. For example, while students who considered themselves above average in academic ability typically received higher GPAs than those who did not, SSS participation had a positive and statistically significant impact for both groups of students, increasing the mean GPA from 2.37 to 2.46 for those who considered themselves above average, and from 2.11 to 2.25 for those who did not. The amount of the predicted increase was not exactly the same for both groups (0.09 versus 0.14), but it was roughly the same level of magnitude. Following are some of the differences among students that did appear.

Table 8-1
Impact of SSS for different groups of students, by student characteristic

Student characteristic	First-year GPA		Retention		Credits earned	
	Base level	With SSS participation	Base level	With SSS participation	Base level	With SSS participation
Self-rated ability						
Above average	2.37	2.46*	0.68	0.74*	20.6	23.5*
Other	2.11	2.25*	0.69	0.72	20.3	22.2*
Family income						
Above $20,000	2.25	2.36*	0.69	0.70	20.9	22.9*
Up to $20,000	2.24	2.36*	0.68	0.75*	20.2	22.6*
Would attend tutoring						
Yes	2.18	2.35*	0.68	0.73*	20.2	22.6*
No	2.36	2.34	0.70	0.72	21.1	23.0*
First generation						
Yes	2.25	2.38*	0.67	0.74*	20.7	22.7*
No	2.23	2.32*	0.70	0.71	20.5	22.9*
High school GPA						
Low	2.12	2.25*	0.63	0.64	21.1	21.4
Medium	2.22	2.36*	0.69	0.74*	20.5	23.5*
High	2.42	2.46	0.73	0.79*	20.1	23.7*
Institution type						
2-year	2.35	2.41	0.65	0.71*	19.1	22.4*
4-year	2.26	2.38*	0.67	0.71*	21.0	23.0*
Doctoral	2.26	2.36*	0.72	0.76	20.4	21.4
Race/ethnicity						
Black	2.10	2.24*	0.66	0.75*	20.3	22.9*
Hispanic	2.13	2.21*	0.70	0.79*	18.2	22.9*
White	2.36	2.45*	0.70	0.72	21.0	22.1
Full time						
Yes	2.27	2.38*	0.69	0.73*	21.2	23.5*
No	2.06	2.15	0.60	0.68	13.4	15.1
Sex						
Female	2.29	2.38*	0.68	0.74*	20.6	23.2*
Male	2.17	2.32*	0.69	0.71	20.5	21.9*
Expect harder time						
Yes	2.19	2.32*	0.70	0.71	20.7	21.6
No	2.26	2.37*	0.68	0.74*	20.6	23.1*
Work while in school						
Yes	2.21	2.30*	0.68	0.73*	20.6	22.8*
No	2.28	2.42*	0.69	0.73*	20.6	22.7*
Took devel. course						
Yes	2.18	2.31*	0.67	0.73*	19.8	21.8*
No	2.32	2.41*	0.69	0.72	21.5	23.9*

*Indicates statistically significant impact of SSS.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

- **Grade point averages.** There were only a few groups for which SSS failed to show a statistically significant impact on first-year GPAs. In two cases (students in the top quarter based on their high school GPAs, and students who would not attend free tutoring if it was made available to them), the groups consisted of students who were not as academically needy as other SSS students, and who were predicted to have relatively high base GPAs even without SSS assistance. One might expect that such students would show less impact because services that were designed for more needy students might not be as appropriate for more advanced students. Further, these students' level of participation in SSS might be low (especially for those not wanting tutoring), so that a lower impact would be anticipated.[6] The three remaining groups that failed to show statistically significant impacts on the first-year GPAs were students at 2-year colleges, those who were not full-time students, and Hispanic students; for all three of these groups, the lack of a statistically significant impact is probably partly due to the relatively small number of cases for analysis.

- **Credits earned.** The pattern for the total number of credits earned was similar to that for first-year GPAs. The impact was positive and statistically significant for almost every subgroup. Further, the size of the estimated impact of SSS was roughly equivalent for each group, so there did not seem to be substantial disparities in how different groups were affected. The greatest single difference was that SSS showed a greater impact for females (an increase from 20.6 to 23.2) than for males (20.5 versus 21.9). For the remaining subgroups that failed to show statistically significant impacts, the failure can generally be attributed to either the group starting with a relatively high base level (i.e., so the group was relatively advantaged, with less room for improvement) or the group having relatively few students.

- **Retention.** Retention was the area with the greatest differences in estimated outcomes. A number of groups appeared to experience a larger SSS-related increase in retention than did others, typically with the most disadvantaged students showing the largest increases. For example, there were relatively large increases in retention for students who had low family incomes, those who would attend free tutoring if it were offered, first-generation students, females, and those who took a developmental course.

In sum, for all three types of student outcomes SSS appeared to have a broad-based effect that was not limited to a few subgroups. In some cases where particular groups failed to show positive and statistically significant impacts, the groups had only a small number of students so the lack of statistical significance is not surprising. The most consistent pattern of differences among subgroups was that the most disadvantaged students often showed a greater impact than students who were less disadvantaged. The next two sections will examine two alternative explanations for these differences.

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[6] Differences in participation are examined later in this chapter

Differential Effects Among Students per Hour of Participation in SSS

For each of the variables in table 8-1, a separate regression was run to examine whether different groups experienced different effects per hour of participation in SSS.[7] However, the ability to find statistically significant differences depended in part on the number of students receiving a particular service and on the number of groups in a particular subgroup. Sometimes an apparent difference between two groups (e.g., a statistically significant result for one group combined with a statistically insignificant result for the other) may simply represent that one group was much larger than the other. Also, if enough comparisons are made, then some comparisons are likely to appear statistically significant simply by chance. For this reason, individual comparisons were not necessarily judged to be meaningful unless there appeared to be a broader pattern or theoretical justification to reinforce that differential effects were likely.

In general, few differences were found in the effects on the various groups, and the differences did not appear to be systematic. The most consistent patterns appeared for peer tutoring and workshops, though even these differences appeared only for selected variables. Peer tutoring showed a somewhat greater effect per hour on retention for students who considered themselves above average in academic ability, and a somewhat lower effect per hour for students who expected a harder time than most; it also showed a greater effect on GPA for white students, non-Hispanics, males, and those who did not expect a harder time than most. Workshops appeared most effective on retention for those with low incomes, blacks, and those who were not working while in school. These findings could provide modest evidence that workshops had the strongest effects on the most disadvantaged, and peer tutoring the strongest effects on the least disadvantaged. However, these findings were not consistent across all variables, and the findings for peer tutoring somewhat contradict the earlier noted pattern that the most disadvantaged students tended to benefit from SSS the most. Thus, the larger pattern still appears to be one of generally consistent effects of SSS across various subgroups, and the small differences that were found are not fully explained by differences in the effects of different services.

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[7] For example, to determine whether students who considered themselves above average in academic ability experienced a different effect than other students, the regression model was supplemented by including an additional nine variables (one for each SSS service) that were the product of the number of hours of participation in SSS and a dummy variable that identified the above average students. In this way, the original nine measures of SSS participation show the predicted effect for SSS for students who were not above average, while the predicted effect for students who identified themselves as above average would be the sum of the original nine measures and the new measures created with the dummy variable. If the coefficient for one of the nine new variables was statistically significant, then SSS was interpreted as having an effect that was statistically different for the two groups. However, in some cases one group showed a positive but statistically insignificant effect, while the other group showed a negative and statistically insignificant effect; in these cases, the difference between the two groups may have been statistically significant even though neither group showed effects that were clearly different from zero. Thus, if the two groups being compared showed a statistically significant difference, the individual coefficients were also examined to verify that the difference was meaningful.

Differences in Rates of Participation

An alternative explanation for the few differences that were found in the impact of SSS is that different groups had different patterns of participation in SSS. Since both the amount and type of service received were found to be important in chapter 7, systematic differences in participation can result in differences in outcomes.

Differences based on institution and program type. One way in which SSS programs might systematically differ in their impact is that they may show different effects based on the type of institution or program where they are located. Differences might appear because students at one type of school are systematically different from those at another type, though the statistical adjustments that are used for student characteristics should minimize such differences, or because the SSS programs are systematically different.[8]

Table 8-2 shows there were systematic differences in the services that students received depending on which type of institution or program they attended. For example, students at 4-year institutions received more hours on average of SSS instructional courses and cultural events, students at doctorate-granting institutions received the most hours on average of peer tutoring, and students at 2-year colleges received the most hours of workshops. Students in home-based programs showed greater participation in SSS instructional courses, professional counseling, and labs, and less in peer tutoring and workshops. Students in blended programs on average participated more in SSS instructional courses and peer tutoring, and less in workshops and labs.

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[8] Another difference is that the meaning of retention is different at 2-year schools than at 4-year schools; however, it is still too early to adequately assess students' transfer from 2-year colleges to 4-year colleges.

Table 8-2
Mean number of hours of SSS services received, by institution and program type

Institution and program type	Institutional courses	Professional tutoring	Peer tutoring	Professional counseling	Peer counseling	Workshops	Labs	Cultural events	Handi-capped services
Institution									
2-year	7.46*	0.36	4.72*	2.13	0.03*	6.13*	0.60*	0.08*	0.43
4-year	28.15*	0.39	5.06*	2.30	0.11*	0.96*	1.72*	0.62*	0.05*
Doctoral	2.32*	0.43	10.59*	2.00	0.68*	0.65*	1.91*	0.18*	1.22*
Program									
Home-based	26.95*	0.53*	5.36*	2.80*	0.30*	1.19*	2.51*	0.73*	0.44
Other	8.93	0.23	6.70	1.49	0.07	3.20	0.28	0.04	0.23
Blended	21.35*	0.39	6.59*	1.67*	0.42*	0.51*	0.61*	0.07*	0.57
Separate	17.00	0.40	5.56	2.56	0.05	3.16	2.08	0.65	0.20

*Indicates statistically different at 0.05 level from all other categories combined.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94

In general, because these differences are accounted for in the statistical model (which includes information on the specific services received and a general correction for differences in mean grades, credits, or retention rates), there is no need to change the models based on these findings. However, the data do provide evidence that programs differ systematically in the package of services they offer, and that these differences can lead to differences in student outcomes.

Differences based on levels of participation. Table 8-3 summarizes differences in the use of SSS services based on student characteristics. The different rates of participation appear to help explain why some groups experienced a greater effect from SSS participation than other groups. One general finding based on table 8-1 is that the most advantaged students sometimes showed less impact than the more disadvantaged students; table 8-3 shows the most advantaged students tended to receive less services, so that a lesser impact would be anticipated. With respect to family income, SSS students with a family income lower than $20,000 generally showed a statistically significant higher rate of participation than SSS students with a higher income for four SSS services (instructional courses, professional tutoring, peer tutoring, and workshops). Students who were not first-generation college students made less use of instructional courses and workshops. Similar patterns appeared for other measures of academic need, including whether the students had taken any developmental courses, whether they considered themselves above average in academic ability, whether they expected a harder time than most in college, and whether they were above or below 2.7 in their high school GPA.[9] Thus, the lesser impact of SSS on relatively advantaged students should not be surprising.

Similarly, other differences that were found among special groups of students can also be related to those groups' use of services. Students who said they would not accept free tutoring if it was offered did in fact receive substantially less peer tutoring,[10] students at 2-year colleges received less peer tutoring and cultural events (see table 8-2), students who were not full time received less peer tutoring and cultural events, Hispanic students participated less in cultural events, and males made less use of workshops and cultural events.

In short, the impact of SSS generally was consistent across most groups of students. To the extent that the impact varied, the difference can be explained either by the small number of cases within a particular subgroup (with the results not being statistically significant) or to the subgroup participating in SSS at different levels. Probably the strongest finding is that it was the neediest students who received the most services. This suggests that while the SSS program intentionally targets disadvantaged students through its eligibility requirements, that targeting is further enhanced towards the most disadvantaged students through students' choices of whether and how much to make use of the services.

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[9] The two major exceptions to this pattern were that needy students participated less in cultural events (perhaps because they lacked time for nonacademic activities, or because they felt less integrated on campus), and the use of handicapped services was greater among those who were not otherwise needy (probably because handicapped students were able to qualify for SSS without having other disadvantages, so they generally were less academically needy than other SSS students).

[10] A willingness to receive tutoring probably reflects a mixture of two motivations: academic interest (the student cares enough about his/her progress to want help) and academic neediness (since otherwise the student would not desire help). There is some evidence that students who received tutoring had slightly higher academic aspirations (66 percent said they planned on at least some graduate-level work, compared with 61 percent among those who did not want tutoring). However, if students' willingness to receive tutoring is used to predict students' GPAs, the regression coefficient is negative and statistically significant, so academic neediness is probably the more important of these motivations. Thus, these data reinforce the earlier finding that it is the neediest students who show the highest use of SSS services.

Table 8-3
Differences in use of SSS services, by student characteristic

Student characteristic	Institutional courses	Professional tutoring	Peer tutoring	Professional counseling	Peer counseling	Workshops	Labs	Cultural events	Handi-capped services
Demographics									
Race/ethnicity									
American Indian	29.59	0.06*	6.34	3.31	0.39	1.10	1.37	0.00*	0.02*
Asian	29.27*	1.09*	6.39	2.10	0.32	0.11*	1.54	0.38	0.90
Black	12.78*	0.44	6.85*	2.66*	0.30*	2.90*	1.89*	0.81*	0.02*
Hispanic	16.44	0.41	7.91*	1.67*	0.21	0.58*	0.76*	0.07*	0.00*
White	23.22*	0.30*	3.97*	2.12	0.07*	2.52*	1.61	0.31*	0.77*
Sex									
Female	18.37	0.43	6.20	2.09*	0.20	2.47*	1.48	0.48*	0.30
Male	19.46	0.33	5.52	2.43	0.18	1.38	1.52	0.29	0.43
Full-time student									
Yes	18.73	0.40	6.23*	2.31*	0.21*	2.22*	1.55*	0.43	0.31
No	17.75	0.37	3.61	1.11	0.07	1.00	0.93	0.23	0.70
Home within 50 miles									
Yes	14.47*	0.41	5.53*	2.25	0.11*	2.84*	1.52	0.40	0.30
No	26.29	0.37	6.61	2.13	0.34	0.78	1.47	0.43	0.43
Academic need									
Income > $20,000									
Yes	15.70*	0.31*	5.13*	2.08	0.23	1.44*	1.51	0.39	0.56
No	20.42	0.44	6.44	2.27	0.18	2.47	1.49	0.43	0.22
First generation									
Yes	20.09*	0.38	6.28	2.23	0.18	2.40*	1.44	0.41	0.24
No	16.21	0.43	5.39	2.17	0.23	1.56	1.59	0.43	0.54
Took devel. course									
Yes	21.64*	0.42	6.57*	2.42*	0.19	2.48*	1.73*	0.36*	0.27
No	12.93	0.34	4.77	1.78	0.20	1.35	1.02	0.53	0.49
Above 2.7 in hs GPA									
Yes	18.38	0.43	6.29	2.02*	0.23*	1.36*	1.39	0.52*	0.57*
No	19.12	0.35	5.41	2.41	0.16	2.90	1.64	0.32	0.13
Above average academic ability									
Yes	17.58	0.34	5.86	2.30	0.23	1.55*	1.62	0.61*	0.59*
No	19.52	0.44	6.05	2.13	0.17	2.46	1.42	0.29	0.18
Expect harder time									
Yes	17.76	0.52*	7.79*	2.19	0.27*	1.93	1.34	0.26*	0.56
No	19.08	0.35	5.33	2.21	0.17	2.16	1.55	0.47	0.27
Able to complete college									
Yes	18.96	0.40	6.01	2.21	0.20	2.08	1.52	0.42	0.36*
No	15.71	0.28	6.00	2.20	0.18	2.07	1.08	0.32	0.09
Academic background									
Work during school									
Yes	19.69	0.26*	5.09*	2.12	0.20	1.55*	1.34*	0.50*	0.31
No	17.92	0.51	6.73	2.28	0.19	2.58	1.63	0.35	0.38
Took courses at other postsec inst.									
Yes	19.79*	0.40	5.85	2.23	0.20	2.05	1.56*	0.44*	0.29
No	10.25	0.35	6.99	1.97	0.16	2.57	0.95	0.23	0.77
Student attitudes									
Go places with school friends									
Yes	18.43	0.31*	5.16*	2.22	0.26*	0.96*	1.65	0.49	0.41
No	19.12	0.46	6.52	2.22	0.16	2.62	1.42	0.39	0.32
Once I start something, I finish it									
Yes	17.53*	0.40	6.32*	2.19	0.20	2.13	1.61*	0.42	0.40
No	21.40	0.36	5.10	2.24	0.20	1.99	1.23	0.42	0.22
Would attend free tutoring									
Yes	17.47*	0.45*	7.28*	2.23	0.21	1.93	1.41*	0.43	0.31
No	22.20	0.19	1.81	2.14	0.15	2.62	1.79	0.37	0.48
Feel comfortable on this campus									
Yes	17.80	0.38	6.08	2.25	0.21	2.17	1.58*	0.44	0.36
No	21.52	0.43	5.55	2.08	0.16	1.80	1.17	0.32	0.31

*Indicates statistically different at 0.05 level from all other categories combined.

SOURCE: U.S. Department of Education, Planning and Evaluation Service, National Study of Student Support Services (SSS), *Longitudinal Study of Student Outcomes*, 1993-94.

9. A PERFORMANCE ASSESSMENT SYSTEM FOR SSS

This chapter outlines a plan for revising the performance reporting and assessment system for the federal Student Support Services program. It discusses the need for performance assessment in SSS and the current performance measurement procedures being used by the projects. It then delineates proposed elements of a revised SSS performance system, considering the advantages and disadvantages of choosing various elements. It is important to bear in mind that in making grants, the SSS program already awards additional points for evidence that projects have met their goals. In that sense, the rewards often associated with positive performance in a performance assessment system are already in place. This chapter suggests various indicators of service provision and student outcomes. It also discusses ways of establishing student outcome goals (or standards) that are challenging for all projects, although no specific outcome standards are recommended. It argues for project-based student outcome standards based upon local (project and institutional) factors with a longer term objective of using local project information on performance collected over several years to design a limited number of broader outcome standards.

While the focus here is primarily on designing and implementing the elements in a national performance assessment system for SSS, many of the suggested indicators could also be used by projects to better organize their operation, keep track of service delivery, track student participation, and examine project outcomes. Data collected by projects on indicators can help projects assess their own performance and make improvements.

Various terms associated with measurement of performance are used in this chapter. "Performance assessment system" refers to the entire constellation of elements that must be designed in order to implement a performance evaluation program. These elements include performance indicators, standards, and measurement.

- **Performance indicators** are the outcomes that can be observed to determine how well a project is performing. For example, because the SSS program seeks to increase rates of college retention, the specific performance indicators to show that projects are increasing retention might include
  - maintaining good academic standing at an institution,
  - remaining enrolled at an institution from one academic year to the next,
  - completing general requirements,
  - completing requirements for the major, and
  - obtaining a degree.

- **Performance standards** are levels of performance that projects are expected to achieve for each performance indicator selected in order to be considered successful; they could also be called goals. Perhaps the main distinction between standards and goals is that standards suggest a level that is usually achievable, whereas goals suggest ideal levels of performance (although there is no reason to assume such a distinction). In addition, standards are often stated in considerably greater detail than goals so they can be measured—or "operationalized." Standards might also be considered the operational detail that accompanies a broad goal.

- **Performance measurement** refers to the measurement plan that must be constructed in order to "observe" performance on each indicator. Devising this plan includes deciding what to measure, who to include, and when to measure performance. Performance measurement requires that we design specific measures, rules, and definitions to guide the system.

HIGHLIGHTS

- SSS projects are required to submit annual performance reports that include data on participant characteristics, the number of participants receiving each type of service, participants' academic standing, and the project's progress toward accomplishing its goals.

- The performance reporting system in place at the time of the study was limited by its lack of performance definitions, service descriptions, and project outcome category definitions; its failure to include measurements of service intensity; and its exclusion of specific outcome indicators (e.g., graduation rates from 2-year institutions).

- Projects generally set service provision goals for the overall number of students to be served as well as the number of participants in each service offering. Few projects set service intensity goals.

- Participant outcome goals tend to be of four types: grade point average (GPA), college retention and completion, direct impact of specific SSS services, and enrollment in additional education. These outcome goals are generally modest, but some projects set ambitious goals for retention and student completion rates.

- To be successful, a new performance evaluation system must clearly define who is a participant, must include a reliable taxonomy of SSS services, and must develop systematic ways of measuring service intensity. This data could be used to establish benchmarks for comparable projects and to assist federal staff members in determining how many students can be served at what rate for what cost.

- Initially, the student outcome indicators included in an assessment system should be those for which valid, reliable data are readily obtainable from institutional sources. They should have wide applicability as well as compatibility with SSS program goals. GPAs and retention rates would be likely candidates for selection.

- Based on information provided by projects and the National Study, federal offices could publish data on the range of services, service intensity, and outcomes across projects in similar institutions and with similar amounts of resources. These would provide benchmarks, and projects could evaluate themselves within the context of typical patterns of service delivery and, potentially, within the context of outcomes.

- Student outcome standards should be based on the principles of fairness, simplicity, ease of implementation, and nondistortion.

- Various performance parameters could be used in establishing outcome standards, such as overall institutional student performance with respect to the SSS performance indicators, the expected outcomes of nonparticipating students compared with SSS participants, past performance of the SSS project, the performance of comparable students in institutions without SSS projects, and the performance of SSS projects in comparable institutions.

- In developing, testing, and implementing a revised performance assessment system, the federal government should consult with SSS project staff members and other interested parties to discuss a taxonomy of services, measurement methods, data collection forms, project goals, and the technical assistance required by the projects to use the system. The federal government would then be responsible for compiling and generating data based on the information reported by the projects.

FEDERAL INTEREST IN EDUCATIONAL ACCOUNTABILITY

Recently there has been a renewal of federal interest in accountability for the outcomes of education. That interest is demonstrated through changes in policies governing federally supported educational programs as well as through efforts to influence performance in state and locally administered education.

Over the past several years, reauthorizations of major federal education programs have included provisions to obtain greater accountability for program outcomes. This direction in federal policy reflects the national concern with the quality of educational outcomes for all students, as well as a number of additional issues. As states and localities increase overall educational standards, there is particular concern that disadvantaged students may fall further behind other students. To avoid this outcome, federal education legislation aimed at disadvantaged or other special-need students has highlighted the need for higher goals in federal programs and introduced performance assessment systems to measure the achievement of those goals.

Accountability provisions have been adopted for major federally supported education programs including compensatory and vocational education. In compensatory education (Chapter/Title 1), states and school districts are required to adopt academic standards and assessment methods for participants in (at least) mathematics and reading. In return, they are granted greater latitude in program administration than would otherwise be allowed. The law also specifies sanctions that states may apply when districts fail to meet state-established standards.

The 1990 reauthorization of federal vocational education legislation also required states to implement standards and performance measures and to conduct annual evaluations. States were expected to develop measures of basic and advanced academic skills, job skills, school retention and completion, and placement (job, additional education, military). Specific incentives or adjustments could be enacted to encourage services to special populations. The performance system was to be implemented at both secondary and postsecondary levels where federal funds were used, although no sanctions for poor performance were imposed.[1]

In addition to these modifications of ongoing programs, the federal government has occupied a leading role in the broader national effort for greater accountability in education. Through the national education goals and the Goals 2000 legislation, the federal government is focusing attention on educational outcomes to a degree unprecedented in U.S. history. The national education goals are purely voluntary, but, nonetheless, they provide benchmarks against which to assess educational performance. And states that accept federal resources are expected to adopt voluntary goals of their own for what children should learn and be able to perform.

In higher education, the federal performance accountability role has been somewhat narrower in scope. Rather than being directed at overall college performance, it primarily addresses two issues—the academic performance of students with Pell Grants and the institutional default rates under federal student loan programs. Students with Pell Grants are allowed overall grade point averages of somewhat less than 2.0 in their freshman and sophomore years, but juniors and seniors must hold a 2.0 to retain their grants. Performance standards for loan default rates are directed at institutions rather than individual students, and institutions whose rates exceed certain levels may be terminated from the loan program.

The federal role in performance assessment in higher education has expanded recently with the publication of the revised Notice of Proposed Rulemaking for the Student Right-to-Know legislation. When adopted, these rules will provide the framework for institutional disclosure of information on graduation rates to current and prospective students. The rules implement 1991 Amendments to the Higher Education Act (HEA) and affect any institution that participates in Title IV, HEA student assistance programs.[2]

These federal efforts reflect a national concern with educational outcomes and accountability that has grown dramatically in the past decade. The movement for greater accountability in primary and secondary education has been extensive. Most states now have in place some level of statewide achievement testing, and many have introduced "report cards" or other mechanisms for comparing the performance of school districts or even individual schools. In addition, performance standards are increasingly moving beyond minimum performance levels. At the postsecondary level, the accountability movement is considerably less developed but by no means absent. Many states have introduced evaluation programs that require periodic institutional and program-by-program reviews for state-supported institutions. These postsecondary reviews are largely focused on institutional or program costs (in relation to participation and completion), and nonfinancial performance standards for public postsecondary institutions are less common than for primary and secondary schools. Nonetheless, eight states now report that they have adopted a policy that does (or soon will) link performance on a set of indicators with increases in state funding.[3]

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[1] It was anticipated that the next reauthorization would address this issue.

[2] A more detailed set of requirements (with additional data requirements) will affect institutions that participate in projects supported by Title IV of the HEA *and* that award athletically related student aid.

Accountability in the SSS Program

A major objective of the SSS program is to improve the performance of higher education institutions in serving disadvantaged students. The program aims to increase the rates at which disadvantaged students remain in college and graduate, as well as the rates at which disadvantaged students transfer from 2- to 4-year institutions. The program also seeks to foster institutional climates supportive of disadvantaged students. The philosophy guiding the program is that the support services SSS sponsors—various forms of counseling, tutoring, instruction, and the like—in conjunction with regular postsecondary education, can improve college retention and completion, as well as graduate school enrollment rates.

The SSS program has a system in place for grantee institutions to report their enrollments, activities, and outcomes as part of an annual performance report. The federal government has required grantees to provide the following information:

- Number of participants by participation categories (low income, first generation, college, handicapped), racial/ethnic background, need for and receipt of financial assistance, and sex of participant;

- Number of participants receiving each type of service (instruction, various forms of counseling, tutoring, and cultural/academic enrichment activity);

- End-of-year status of current participants and "prior year(s)" participants with respect to academic standing, dismissal/withdrawal for various reasons, graduation, transfer, and enrollment in graduate education; and

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[3] D.T. Layzell and J. Kent Caruthers, "Performance Funding for Higher Education at the State Level," paper presented at the American Education Finance Association annual meeting, Savannah, GA, 1995.

- Other project goals/objectives identified in individual grant awards and the project's accomplishments with respect to them.

The kinds of data projects must provide reflect the basic goals of the SSS program. For the SSS program to succeed, it must enroll participants and deliver services. Those students must then stay in school and graduate.

Only one set of data elements in the performance report reflects a specific federally established goal (or standard) for the SSS program. The SSS legislation mandates that all participants must be economically disadvantaged, first-generation college goers, or persons with disabilities. Further, it establishes a standard for the percentage of participants in any individual project that must be both economically disadvantaged and first-generation college goers. Interestingly, this standard is applied to all projects, regardless of the student composition of the institution. As a result, that goal is easily met in some projects but is more difficult to meet in others.

The performance reports produced by the projects are used by the federal government in two ways. First, individual project reports are consulted when the Department of Education monitors projects, particularly when it conducts site visits. For example, government officials may examine the reports to ensure that projects are selecting participants in a manner that reflects the federal standard.[4] The data provided in the performance reports may also be verified during site visits.

Project performance reports also play a significant role in grant awards. During competitions for funding, current SSS grantees that have met their own goals qualify for up to 15 additional points, beyond the 100-point maximum for other applications. As a result, there are strong current incentives for projects to meet their performance goals. The performance reports are the source of information on project success in meeting those goals.

In recent years, the Department of Education has made little synthetic use of performance report data, nor have the data been used to compare the performance of grantees. Few summary reports have been issued that aggregate the information in the reports to describe project participants.[5] Due to a lack of comparability, the reports have not been used to identify the extent or ranges of project outcomes—for example, by reporting on the percentage of participants who graduate from college or the range of graduation rates across different types of projects or grantee institutions.

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[4] At least two-thirds of the nonhandicapped participants are both low-income and first-generation college students.

[5] The National Study of SSS has used the performance reports to help profile the SSS program (see chapter 4).

PROBLEMS WITH THE FEDERAL DATA COLLECTION REQUIREMENTS IN PLACE AT THE TIME OF THE STUDY

While the performance reporting system in place at the time of the study had been in existence for many years, it had limitations for use in determining project performance. (Appendix F contains a copy of the SSS performance reporting form used up to 1995. This form is under revision at the time of the writing of this report.) Some of the inadequacies of the form are inherent in the data collection system itself, while others can be seen by reviewing the goals projects set and the resources they possess to evaluate their success in meeting those goals. We look first at the data collection system, then at the project goals and local evaluation efforts.

Definitional Issues

Many of the categories used in reporting performance lacked definition. For example, all data on numbers of students enrolled (Section I of the reporting form) were to be submitted for "project participants," but no definition of participant was provided. Should it, for example, include persons who may have had an intake interview but received no additional services? Should it include only persons who obtained a particular level of service within a particular time frame (e.g., at least 1 hour of service during an academic year)?

In addition, the categories of service and enrollment were insufficiently described to ensure that forms were being completed consistently across projects. For example, under "instructional services," projects were asked to identify the number of participants enrolled in "English" in one column and "English proficiency" in the next. There is no explanation of differences between these two categories. Within each subject area, projects were also asked to identify those participants enrolled "for institutional credit" and those enrolled "as a part of the academic support services offered by the project." While "institutional credit" would appear to be relatively easy to determine, that is not the case. Some institutions offer "credit" for remedial (or developmental) courses, while others do not. In addition, the meaning of "academic support service" was not provided, and it is unclear whether the two categories were intended to be mutually exclusive. For example, if a project provides supplemental instruction required for a remedial English course, in which category do those activities belong?[6]

With respect to counseling services, the categories for which participation data were requested were not defined. There is no way to be sure that all projects consider the parameters of each type of counseling (personal, academic, financial aid, career, graduate school) the same. Because of the nature of college counseling, one would almost expect that all counseling participants would show up in almost all the categories, making the distinctions less than useful for analysis. In addition, the categories were not mutually exclusive even by definition, because peer counseling was included as a counseling subject rather than as a descriptor of a type of person providing counseling services.

While data on counseling and instruction were subdivided, data on tutoring were not further divided in any manner. Tutoring is one of the most common SSS service in terms of contact hours, so further information—amounts provided, who provides it (peers, professionals, etc.), subjects (English, math, etc.), setting (group or individual)—would be particularly helpful. Certain types of commonly provided services, such as labs, workshops, mastery classes (or supplemental instruction), and seminars were not afforded categories, nor were there instructions about where to place these services within the existing categories.

With respect to project outcomes (Section III of the form), several definitional issues arose. Projects were asked to report on various enrollment statuses of "current participants" and "prior year(s) participants" including how many were enrolled (in good standing or not), and how many left (withdrew, dismissed, and the reasons for each), graduated, transferred to another institution, or enrolled in graduate school. In addition, few definitions were provided for end-of-year statuses. Because projects differ considerably with respect to who is a current or former participant, the decision about assigning these statuses was largely idiosyncratic. Projects were instructed to define "good standing" as it was used at their institution, but no instructions were given for how to distinguish between withdrawal and dismissal. Graduation was defined as completion of a 4-year institution only; there was no place on the form to record graduation from either a 2-year institution or a 2-year program at an institution that offers both 2- and 4-year programs. (Two-year institutions were asked to show "the number of students who completed a 2-year program *and* transferred to a 4-year program.")

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[6] In addition, asking projects to provide the reasons for which enrollment in a course occurs is, if even possible, also subject to considerable error.

Differences in the Evaluations Conducted by Grantees

In the National Study of SSS, portions of the project staff survey and the case studies explored the project-level use of evaluation. We found that projects were quite concerned about their performance and that project staff spend considerable time and resources investigating the performance of participants. We also found that participant outcome goals established by the projects differ considerably—both with respect to the aspect of the project their concern and the difficulty of meeting those goals.

The 1991-92 survey of project directors showed that project staff were using a variety of methods to determine how well their projects were performing. Almost all project directors (96 percent) reported that they analyzed SSS student retention rates, and most of them (76 percent) compared those rates with the rates of students with similar characteristics at the institution. In addition, 80 percent of project directors also examined course completion rates, but fewer than half (43 percent) compared the course completion performance of participants with that of similar students at the same institution. Student tracking was conducted by most projects, with 70 percent of projects conducting followups for their students and 61 percent tracking students who had left the institution. (See Interim Report, Volume 1 for detailed discussion of project survey results.)

While the retention and course completion data collected by projects reflect data elements of the federal performance reports, projects also conducted evaluations not required by the federal government. Fully 80 percent of projects reported using student evaluations. In addition, almost two-thirds of projects (64 percent) used written staff evaluations to determine project success in meeting goals. A relatively large number of project directors (18 percent) indicated that they saw a great need for improvement of resources for evaluation in an open-ended question on improvement needs. These findings suggest widespread use of evaluation tools and indicate a desire for assistance in improving the quality of local evaluations.

From the case studies we learned more about the specific goals that projects establish as well as the resources they devote to examining how well they are meeting those goals. First, the case studies reinforced the critical importance of federal requirements in local program evaluation. Most projects indicated that their project goals were established when the project staffs prepared their SSS grant applications. In addition, it is the preparation of the annual federal performance reports that drives the evaluation activity of the projects. Some of the projects visited pointed out that preparation of the annual report takes a considerable amount of the time of project staff; it is sometimes a major summer activity of the project director or another staff member. This means that the evaluation process could consume a quarter or more of the time of a senior staff member each year.

Service provision goals. With respect to service provision goals, projects are required to set goals for the number of students to be served (overall and by academic year), and they sometimes set goals for the types of services and numbers of participants enrolled in each. Data on these topics are also required to complete the performance reports. Only a few projects set other service provision goals. For example, the average amount of overall service (or of a specific service) that will be provided per participant (i.e., service intensity) is rarely a project goal. Such goals were not part of the performance reporting system, and only a subset of projects (usually those with student-level computerized record systems) tracked how much service was provided overall or per participant. Projects determine whether they had met their service provision goals by reviewing project-level data collection forms. These reviews include tallying the overall participant lists as well as aggregating data from forms maintained by each staff member that show who attended services each time they were offered.[7] These forms could be the basis for obtaining measures of service intensity.

Student outcome goals. All projects we visited established at least one student outcome goal, and many set several such goals. Student outcome goals for the projects included in this study for the early 1990s are included in exhibit 9-1. Goals often target one or more of four areas: grade point average (and/or academic standing), college retention and completion, direct impact of a specific SSS service, and enrollment in additional education. In general, these goals reflected the federal performance categories. The most common outcome goal is a GPA to be achieved "on average" or by a stated percentage of participants (or a stated percentage for a particular subset of participants). Projects also specify the percentages of participants that should be in good standing at the institution at the end of an academic year.

The data used by the projects to determine how well the GPA/academic standing, retention, and completion goals are met were usually obtained from two main sources. The most frequently used data source is institutional records, which are usually, but not always, computerized student records. These data are sometimes supplemented with informal or formal student surveys, particularly when students have left the institution. Some projects are able to

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[7] As part of the national study, we asked participating projects to maintain service records for each freshman participant that would show how many contacts the student had and the duration of the contact. All projects were able to provide the requested information in some form

Exhibit 9-1

Performance goals of SSS projects, by institution type, control, and admissions criteria

FOUR-YEAR INSTITUTIONS
RELATIVELY HIGH SAT/ACT FRESHMAN SCORES

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Four-year, public university, 94% full time	School reports lower 2-year retention rates than 6-year completion rates for most classes. Data questionable.	- Retain and graduate participants at rates equal to or better than their cohorts at the institution. - 95% of participants receiving writing skills assistance who attend 80% of their scheduled appointments will complete English I (Written Comp) with 2.0 GPA or better. - 85% of participants receiving learning skills instruction who maintain 80% attendance will receive a combined 2.0 GPA or better. - 80% of those who attend at least 6 SI sessions per semester will receive grades in the corresponding course which are higher than the class average. - 70% of those who receive tutors prior to the 4th week of classes and maintain 80% attendance will get 2.0 GPA or better in the tutored subject.
Four-year, public university, 72% full time	For '85 fresh, 50% graduated and 7% still enrolled after 5 years.	- 75% of participants will maintain 2.0 GPA of better. - 75% of participants will persist toward completion of the academic program.
Four-year, public university, mostly full time	Fresh. class of '83: 67% grad rate in 7 years--45% for blacks; fresh. class of '85 lower. Depending on year, 88-90% retention fresh to soph.	- 70% of participants will maintain a 2.0 GPA. - 80% of participants will be retained thru the first 6 quarters. - 55% of participants will be retained thru graduation. - Project will seek to increase by 20% the enrollment of program graduates into graduate and professional school.
Four-year, public university, 74% full time	Of 1985 fresh, 49% grad or still enrolled after 6 years, 31% for EOP.	- To increase by 1 letter grade the final course grade of 80% of tutoring participants who attend at least 2/3 of tutoring sessions.
Four-year public university, 80% full time	Two-year retention averages 58% (but increasing over time. Completion rates for 4, 5, 7 years given--a little less than a third graduate by 7th year.	- 85% of participants in developmental course work will earn a grade of C or better. - 70% of participants in tutoring will complete the course for which they were tutored with a grade of C or above. - 70 high-risk project participants will be admitted; the retention rate for these students will be as least 90% of the rate for all other students.
Four-year, public university	Site visitor unable to obtain information on retention and completion. CG says 50% of entering class graduate, 76% retained from fresh. to soph. year.	- Retain at least 75% of fresh participants thru the first year and at least 60% thru the 2nd year. - At least 60% of participants will graduate. - 65% of participants will have 2.0 GPA at the end of each year - At least 85% of participants in the career decisionmaking class will earn a C or better grade in the course.

Exhibit 9-1
Performance goals of SSS projects, by institution type, control, and admissions criteria (continued)

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Four-year, private university, 75% full time	School reports percentages retained to senior year: average 41% retained to senior year in freshman classes '83 to '86. (CG: 61% of fresh. retained to soph.; av. 40% graduation rate.)	- Achieve a yearly retention rate of 70% among freshman and sophomore participants and a 90% rate among junior and senior participants. - Achieve a 4-year retention/grad. rate equal to or greater than the institutional rate which is usually 40%-45%. - 85% of the yearly participants will be in good academic standing. - 10% of participants will accepted into graduate school. - 80% of the participants in learning skills courses will attain a 2.0. - 90% of participants will pass their individual learning skills courses. - 75% of participants will earn a "C" or better, and 90% will pass their tutored math classes. - 75% of participants will earn a "C" or better, and 90% will pass their tutored science classes.
Four-year, public university, 66% full time	Fresh to soph. retention av. 75% over 5 classes in mid-'80s, 7-year grad rate 37.7% (includes transfers to other schools in same system).	- Serve 75 LEP participants and attain a 65% passing rate by 8/31/91. - Attain a 70% passing rate on [writing exam for grad.] for 70% of those who attend prep. workshops, and a 60% passing rate for those who receive individual tutoring for the exam. - Attain a 60% passing rate on the [English exam] for those who attend prep. workshops and a 65% passing rate for those who receive individual tutoring for the exam. - Attain a passing rate of 70% on the [teacher exam] for those who attend prep. workshops and a 65% passing rate for those who receive individual tutoring for the exam. - Attain a 60% passing rate on the [developmental math] exam for those attending prep. workshops, and a 65% passing rate for those receiving individual tutoring. - Attain a 60% passing rate for [math test for teachers] for those in prep. workshops and 65% passing rate for those in individual tutoring. - Provide tutoring to 75 disabled students and achieve a 65% retention rate.
Four-year, private college; 63% full time	Five-year grad rate 46% for '85 freshmen as a whole, with 7.5% still attending.	- Participants in tutorial services will maintain 2.0 GPA in the tutored subjects. - At least 100 (of approx. 130) SSS participants will maintain 2.0 GPA. - 80% of 25 freshmen recruited each summer will be retained thru graduation in 5 yeras. - 80% of 25 freshmen or trasnfer recruited each fall will be retained thru graduation in 5 years. - Retain 90% of fresh. participants and enroll them in specific core sophomore courses. - Retain 80% (36) of sophomore students. - Retain 100% of junior students. - Enroll at least 10% of grads in grad school within 2 years.

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Exhibit 9-1
Performance goals of SSS projects, by institution type, control, and admissions criteria (continued)

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Four-year, public college, 84% full time	Fresh to sophomore retention rate 60%. Approximately 25-30% graduate after 5 years (depending on year).	- 75% of participants being tutored receive a passing grade, and 70% receive a C or better. - 80% of participants in 6-week summer program will be retained thru freshman year. - 75% of participants in intensive freshman orientation program will be retained in good academic standing thru their 4th semester. - 80% of transfer participants receiving orientation services will be retained thru graduation. - 75% of all returning project students will complete the 1990-91 year in good academic standing. - Achieve better persistence than college as a whole (SV).
Four-year, public university, 82% full time	From institutional data: less than 25% of first-time undergrads complete in 6 years. Roughly 60% fresh to soph retention (data for four years provided). CG reports 50% completion rate.	- At least 50% of participants will attain a 2.25 GPA after completing the first year of program - 60% of participants will attain a 2.5 GPA after completing two years in the program - Retain 60% of first year participants thru 2nd year of program participation - Graduate 50% of all first-year participants
Four-year, private, 95% full time	No printed retention/completion information. Told 45% graduate in 5 years, but actual enroll. data show substantial drop off in numbers of students after fresh year (fresh: 45%; soph: 22%; jr: 14%; sr: 19%). Enrollment does not appear to have changed much in past two years.	- 75% of participants in developmental reading will receive credits & reenter the regular academic sequence by 5/4/91. - 48% of participants in developmental math will receive credits and reenter the regular class by 5/04/91. - 60% of tutorees will receive a C or better in tutored subjects. - 50% of participants will make satisfactory progress. - 60% of participants will have an increased level of personal adjustment. - Retain 90% of fresh participants in specific core sophomore courses in English and math. - 25% graduation rate for participants (SV).
Four-year, private, liberal admit	no data available	- 80% of participants will be retained thru the 2nd year. - 90% of participants in basic skills instruction will improve their GPA by 1 letter grade by completion of their 1st year. - 80% of the graduating seniors expressing a desire for graduate studies will be successfully placed. - 65% of SSS participants who graduate will engage in careers in which minorities are traditionally underrepresented.

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Exhibit 9-1
Performance goals of SSS projects, by institution type, control, and admissions criteria (continued)

FOUR-YEAR INSTITUTIONS
OPEN ADMISSION

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Four-year, public university, 58% full time	No official information on retention and completion. Enrollments show substantial drops in numbers of sophomores compared to freshmen. SSS has calculated unofficial completion rates showing about 23% after ten years, with 8% still enrolled. Recent data show retention from first to second year of enrollment for fall entering classes ranging from 62 to 68 percent, depending on class.	- 60% of participants will enroll for their 2nd year. - 45% of participants will enroll for their 3rd year. - Full-time participants will satisfactorily complete 20 semester hours of credit per academic year. - 63% of participants will earn 2.0 GPA or above after 1 year. - 68% of participants will earn 2.0 GPA and above after 2 years. - At the end of the fall semester, no more than 10% of participants will be placed on academic probation; and at the end of a probationary period, no more than 5% of participants will be placed on academic suspension. - 75% of participants will have a first year GPA that ensures satisfactory academic standing. - By the end of the 2nd year, all participants will have an overall GPA of 2.0. - For participants in reading program, reading skills will increase by 1 grade level a semester [test specified]. - Of all graduates pursuing graduate school, 30% will have participated in SSS.
Four-year, public university, 80% full time	Retention fresh to soph. 57-66%. Data on 4- and 5-year completion rates incomplete.	- The institutional attrition rate will be decreased by 3% by assistance provided to 400 participants in SSS. - 60% of participants will complete the year with a 2.0 GPA or better. - 50% of participants will earn at least 1.5 GPA at the end of the 1st semester and 2.0 GPA at the end of the 2nd semester. - The reading levels of participants in the reading/study skills courses will be increased by one grade level at the end of one semester [pre-post test specified]. - Math competencies of participants will show an increase of 1 grade level at the end of 1 semester as measured [pre-post test specified]. - Positive self-concept will improve 10 points on a [pre-post test specified] for participants in counseling component.
Two-year program within 4-year, public university	Of participants in special program from which SSS participants are drawn: 11-12% graduate within 6 years from univ; 24% transfer to other schools at some point and their grad rate is unknown.	- By 6/30 of each year, 72% of participants in counseling and tutoring services will remain in the program and maintain good academic standing. - By 6/30, 62% of 25 high-risk participants who receive tutoring and counseling will maintain good academic standing. - By 6/30, 62% of 30 disabled students utilizing special tutoring and academic support services will persisted in their academic careers and have maintained good academic standing.
Four-year, public, 85% full time	Report 25% grad rate in 7 years, 2/3 return fresh to soph year.	- Retain 80% of participants to following year (SV). - Graduate 60% of participants (SV).

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Exhibit 9-1

Performance goals of SSS projects, by institution type, control, and admissions criteria (continued)

TWO-YEAR COLLEGES
OPEN ADMISSIONS

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Two-year, public college, 69% part time	1989 data: 9.4% graduation rate, 16% transfer rate.	- 60% of transfer initiative participants will matriculate at 4-year institutions.
Primarily 2-year, public college, 70% part time	45-50% annual retention based on recent study by admissions director.	- Retain 80% of participants thru first year. - 60% of participants will complete their academic programs. - 80% of participants will achieve 2.0 GPA or better.
Two-year, public college, 66% full time	No retention or completion data available to site visitor.	- 65% of participants will be retained (complete their course of study-SV). - 70% or retained students will have a 2.0 GPA or better. - 60% of transfer participants are retained. - 50% of transfer initiative students transfer within 6 semesters.
Two-year public college	No retention or completion data available to site visitor.	- 85% of participants will be retained thru graduation - 75% of those retained will attain a minimum of 2.5 GPA.
Two-year public college, 69% part time	No retention or completion data available. About 8,000 students at downtown campus and about 750 degrees and certificates last year.	- 75% of participants will successfully pass the courses in which they were enrolled their first semester. - 85% of participants will be retained at school from fall to spring each academic year. - 10% of participants will graduate from the institution or transfer to a 4-year college each academic year. - 85% of participants will be in good academic standing at the end of May each academic year. - At the end of the academic year, participants will have an average GPA of 2.25 or better.
Two-year, public college, 53% full time	No formal retention or completion data available. Graduates (degrees and 6 or 12 mo. certificates) were about 18% of enrollments in 1990.	- 40% of participants will increase one letter grade in course for which tutored. - 60% of participants in orientation and study skills course will pass on first try, 85% by second try. - 20% of participants will graduate. - Retention rate of project will exceed that of institution by 5%.
Two-year, public college	For fall '86 entrants, 15% graduated and 15% still enrolled in Spring '90, based on retention study.	- 50 (of 70) participants in the transfer initiative participants will transfer to 4-year schools within 8 semesters. - 75% of transfer participants will remain at 2.5 GPA at school. - 50% of transferees will maintain a 2.0 GPA or better for the first two semesters at the receiving institution. - Retain 80% of participants from fall to spring semester and retain 60% of participants from spring to fall semester.

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Exhibit 9-1
Performance goals of SSS projects, by institution type, control, and admissions criteria (continued)

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Two-year, public college, 65% part time	No institutional retention or completion data available. SSS estimates 17% graduate, about 60% return from fall to winter quarter. (CG shows a # of associate's degrees in '88 equal to about 6% of enrollment #)	- 80% of participants will maintain above 2.00 GPA in 1991-92 (later changed to 85%-SV). - 50% of participants enrolled in transfer program will maintain a quarterly GPA of 2.50 or above. - 70% of participants in 1991-92 will complete the academic year (later changed to 65%-SV). - 15% of the 1991-92 participants will graduate by 8/31/92. - 35% of 91-92 transfer participants will enroll in 4-year colleges for Fall Quarter of 1992 (later changed to 26%-SV).
Two-year, public college; 64% part time	Site visitor obtained no information. CG says 57% retained from fresh to soph.	- 75% of participants will receive tutoring and complete the course with a C or better.
Two-year, public college, 60% full time	Virtually no retention or completion data available to site visitor. One semester retention rates put at 79-84 percent. (Also says elsewhere that 41% drop out in one year). Grads to enrollments about 14% in recent years--considered good rate compared to system.	- 80% of participants will be retained at the end of first year enrollment in the project. - At least 65% of participants will maintain a minimum 2.0 cumulative GPA. - At least 70% of participants receiving tutoring will earn a C or better in the related courses. - At least 70% of the participants in developmental reading and/or study skills will earn a grade of C or better for those courses. - At least 55% of the participants in writing instruction will pass [the assessment exam] by the end of 1 year of enrollment in the project. - 80% of participants receiving assistance from the Learning Specialist will be retained at the end of each project year. - 70% or more of the ESL participants will be retained after each year of participation. - At least 60% of the participants in an English course who receive writing instruction will pass the course with a grade of C or better.
Two-year, public college; 70+% part time	Fall to spring semester 1991 retention 67%, slightly higher for full-time students. No completion data available. Told all recent grads had graduated within 6 years of starting and that 6% transfer to 4-year schools.	- 75% of participants enrolled in basic skills instruction courses will attain a competency level of 70% in developmental math and 75% in developmental English within 2 semesters. - 75% of participants will be retained to second semester. - 70% of participants will be retained to next academic year. - 85% of the participants will remain in good academic standing.

Exhibit 9-1
Performance goals of SSS projects, by institution type, control, and admissions criteria (continued)

Institution	School retention information (from case studies)	SSS student performance goals (from 1989 proposals)
Two-year, public college, 52% full time	For first-time fresh fall '85, 52% returned for next year. After 8 semesters, 16% had graduated.	- 15% of SSS participants will graduate during the academic year. - 80% of participants will maintain good academic standing. - 80% of participants will successfully complete the year's academic program. - 28% of transfer participants will be accepted at 4-year institutions. - Retain and graduate participants at rates equal to, or better than, overall college.

Key:
HBC = Historically black college
LEP = Limited English proficiency
EOP = Educational equity/opportunity or other related program
SI = Supplemental institution

obtain the data on participant performance in complete (aggregated) form from institutional research offices, but most projects must analyze computerized records student by student (or analyze hard copy printouts of such records) themselves. Tallying these records has been an extremely time consuming effort in some cases. Student followup survey data are problematic. Many, if not most, projects lack the resources to obtain accurate data from followup surveys of students who are no longer attending the institution.

In general, the outcome goals that projects set were modest (possibly to ensure that they meet their goals), but some projects set ambitious goals, especially in the area of school retention and completion (see exhibit 9-1). GPA goals (the most common) tended to be set at levels that were easily attainable. Often, a project specified that 70 or 80 percent of participants should achieve a 2.0 GPA (or be in academic good standing) after a year in the project. Many grantees also set modest completion goals (in relation to overall completion rates in the institutions in which they are located), but some grantees did set ambitious completion goals. In a few cases the completion goals were so high in relation to actual performance of the institution that it appeared the projects were largely unaware of overall institutional performance.

About half the projects we visited set goals that were directly related to the service provided by SSS. The most common of these was a course passage rate goal in cases where tutoring or supplemental instruction (SI) for a specific course had taken place. A few projects specified counseling-related behaviors students would be able to demonstrate at completion of a semester or a year (e.g., making a career plan). Only two projects, however, limited their goals to this type. Data to determine whether service-specific goals have been met are obtained from several sources, including inquiries of professors or students, institutional records, or project records.

Goals that address participant behavior after students have left the grantee institution—including transfer (from a 2-year to a 4-year institution) and entrance to graduate education—were not common among the grantees we visited. Projects that did adopt such goals used surveys to determine completion rates for students who leave the institution, as well as for behaviors that occur after graduation. Up to now, even projects located in multi-campus universities or other such systems have rarely used systemwide or statewide data systems that might allow them to track at least some of their participants to other institutions. Using these systems may be a possibility for the future, however.

Differences in service organization and goals. In addition, projects differed with respect to whether they were designed to serve students for shorter periods of time (such as a semester or an academic year, or for orientation or workshops) or to maintain project participation for the full duration of a student's stay at that institution. These differences in projects affect who is considered a current or former participant, and hence should be tracked over time, making comparisons across projects on key outcome variables difficult. In general, it is unlikely that most projects can provide accurate information on the actual numbers of participants who have transferred, enrolled in graduate school, or graduated from another institution.[8]

FINDINGS ABOUT STUDENT OUTCOMES FROM THE NATIONAL STUDY OF SSS

In addition to our analysis of the performance reports and project-level evaluations, specific findings of the National Study of SSS also show the need for a reexamination of performance assessment. With respect to indicators of project performance (types and amounts of service, intensity of services), examination of student service records maintained for the evaluation present a number of important findings. Student outcome findings also show possible directions for reform.

As already discussed elsewhere in this report, the longitudinal study of SSS participants has shown statistically significant positive short- and medium-term effects. Specific services identified with positive outcomes include peer tutoring, workshops, instructional courses, cultural events, and counseling in the second year. In addition to services, the setting or context of service delivery appears to be important. Projects that we classified during site visits as providing a "home base" for the participants on campus showed significant positive effects at both the 1-year and 3-year points, as did projects that blended/coordinated SSS and non-SSS services.

In addition to the overall findings and the findings about specific services, we also observed substantial differences in the amounts of service provided per participant, both within and across projects. Some projects delivered well over 20 hours of service on average, while others delivered less than 10 hours. There are a number of reasons for these differences. For one, some projects emphasize services that are provided to larger groups (instruction, supplemental instruction or mastery classes, workshops) while others emphasize services that are likely to be provided one on one or in small groups (counseling, tutoring, labs). But even when instructional services are omitted from the examination, projects still show a wide range of service intensity. In addition, there were also differences within individual projects with respect to how much service is delivered to freshman participants. There were projects where most participants received fewer than 10 hours of service, but a subset of participants may have received 30 hours or more. These include projects providing SSS-sponsored instruction to some participants, but also projects that do not provide instruction.

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[8] Not all of these items are currently requested in the performance reports explicitly, but certain levels of performance in these areas are among the types of goals that the projects set for themselves.

Given the limited resources available to the SSS program (about $800 per participant in 1995), this set of findings (overall positive effects, greater effects for certain services and delivery approaches, greater effects for more service) is encouraging. It means there is solid evidence that the SSS program can positively affect retention and college completion. The findings presented in chapters 7 and 8 provide some initial directions for reform by showing that certain services and organizational strategies appear to be beneficial and that greater amounts of service enhance project effects. Given these findings, it is not unreasonable to suggest that an assessment system that challenges projects to meet more ambitious service delivery and student outcome goals could result in further enhanced project performance. These findings also suggest project elements that might be manipulated to bring about greater effects—service mix, delivery or organizational approach, and amount of service per participant. There may also be other strategies that projects identify and that are identified by examining particularly successful projects.[9]

In tracking the participants over time, we also learned about the substantial effort necessary to obtain longer term information on student outcomes. Starting out in 48 institutions, our sample of about 6,000 students attended over 800 institutions by the third year.[10] Some 30 percent of the participant group enrolled in at least one course at a different institution and about 24 percent transferred. Only 49 percent were still enrolled at the same institution in the third year.

SUMMARY: NEED FOR ASSESSMENT OF PERFORMANCE

In short, then, there is a need to reexamine the manner and use of performance assessment within the SSS program. The SSS authorizing legislation does mandate performance reports and creates a powerful incentive for positive performance in the form of prior experience points. The performance reporting system was limited, however, primarily because it failed to require uniform definitions across projects and because it did not collect information about one of the factors most related to project performance (i.e., service intensity). Projects show a strong interest in conducting evaluations, but staffs are limited in terms of time, expertise, and data availability. In addition, the goals that projects set for themselves are uneven; some projects set challenging goals while others set modest goals. Since the failure to meet these goals can result in loss of funding, projects have incentives to set more easily attainable goals.

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[9] The National Study is beginning a "best practices" followup study of projects that show promising individual effects on GPA or retention.

[10] Not all these enrollments mean that students have left the initial institution; some may be summer enrollments, interim enrollments, or even simultaneous enrollments.

The findings of the National Study about student outcomes also argue for increased attention to both process and student outcome goals. A systematic performance assessment system that will encourage projects to adopt more effective strategies is certainly indicated. Challenging outcome goals might provide an incentive for some projects to provide more service and to experiment with more effective approaches.

DESIGNING THE PERFORMANCE SYSTEM

In this section, we propose a basic set of indicators for the SSS program. Many, but not all, of these indicators already appear in the performance reporting system.

Designing Indicators of Service Delivery

If projects are going to track student performance and measure project success in retaining and graduating students, they first need detailed information on the interventions they are providing. Service delivery process indicators in the performance reports did not specifically include several key services and provide no information on how much of any service was provided to participants. Nor did they tell us how much staff time was devoted to providing direct service to participants. As we have discussed, there were considerable differences among projects with respect to how much service was being delivered as well as how much service each participant within a given project received. Service delivery process indicators using common definitions of participants and services across projects, and systematically measuring amounts of all important services, should be implemented.

Participant definition. Since all indicators and standards evaluate student participation, a universal definition of "participant" must be developed. Currently, some projects include students receiving 1 to 2 hours of service over a semester or academic year as participants.

In some cases, this is done to ensure that the project is serving the requisite number of students. In other cases, projects focusing on freshman-year services may continue to list students as participants as they progress through college. Although this helps nonfreshman students retain their ties to the program and assists the SSS project staff in tracking students, beyond freshman year these participants may be receiving few services.

We recommend that projects provide both the total number of participants (at any level of participation) and the number of participants who receive a predetermined minimum level of service. For example, minimum level could be set at 5 hours of service over the freshman academic year and at fewer contact hours in subsequent years. The precise definition of "minimum service level" would be established by the Department of Education SSS program office after consultation with SSS project directors. This action will also help to facilitate project evaluation and highlight the importance of the links between participation rates, service levels, and student outcomes.

Service delivery. As previously discussed, the performance reports were uneven with respect to the range of services for which participation data were requested. Detailed information was requested on counseling but not tutoring. Categories of instruction were poorly defined. Based on the National Study, we have learned that it is not easy to define the parameters of specific services and that different projects may use similar terminology to describe different services. Thus, we recommend the development of a simple but complete taxonomy of SSS services that names and describes each type of service. The groundwork for a taxonomy has already been developed, both through the descriptive information on services gathered as part of the National Study, and through the student-level service record form (included in the appendix to the chapter) that was completed by participating projects.

The taxonomy should be developed by the federal program office in conjunction with projects that are willing to test its appropriateness. We would recommend that the taxonomy include at least the following broad categories: counseling, tutoring, peer study groups, developmental course instruction (reading, writing, math, etc.), study skills course instruction, other courses, supplemental instruction (SI) or mastery classes, laboratories accompanying courses, workshops/seminars, mentoring, and cultural events. There may be additional categories that are identified as a result of discussions with projects and a pilot test. The appropriate level of detail with regard to each service type should be determined by those working on the taxonomy.

Service intensity. As we have shown, service intensities vary considerably both within and across projects. The SSS program, as a whole, and the individual projects need systematic ways of measuring how much of each service is delivered to participants. Projects cannot effectively increase the amounts of service they provide unless they know how much they currently provide and can document the changes that occur.[11]

To measure service intensity, we must recognize that some services are delivered to groups and some to individuals. Counseling is almost always delivered one on one; instructional services are almost always delivered in group settings. This means that it is easier for a project that delivers instructional services to show larger numbers of contact hours per participant. Of course, the participants in courses are not getting the level of individual attention during those hours received by the participants in one-on-one counseling. The simplest way to address this issue is to collect the number of hours of service received within each service category, since the category largely determines whether the service is provided individually or in a group setting. In addition, projects could be asked to provide the size of the group receiving services and the total number of service contacts. This information is similar to that collected by the National Study's service record study.

We recognize that the intensity cannot be defined as directly proportional to the number of persons in the group since a group session might involve as much student attention as a one-on-one session, or that there might be specific benefit in student discussion or in listening to the questions of others in the group that might not occur in a one-on-one setting. The reason for measuring intensity in the aforementioned manner is that a rough approximation of service intensity could help projects (and federal officials) to know how much service they are delivering and who is getting the greatest/least attention from the project.

Based on the information that projects provide, federal officials could publish data on the range of services and service intensities across projects with similar levels of resources. It would be useful for projects to understand typical patterns of service delivery that could be used as benchmarks to place their own efforts within that context. And projects would be spurred to seek ways of achieving greater efficiency (service contact hours) in relation to resources.[12] Projects that fell well below the benchmarks might be asked to provide an explanation.

The information obtained by synthesizing project information on services and intensities would also provide data on the number of participants that can be served at what rate for what cost. This information would allow the grant award negotiation on participant levels to be based on knowledge about what rates are feasible. From our experience in the field, project staff expend considerable effort trying to meet the requirement to serve the number specified in the grant award. In general, project staffs believe that they are being asked to serve too many people for the resources they are provided, although there are a subset of very large projects that would prefer to have higher participant requirements.[13] Studying the current service intensity levels would enable the federal SSS office to set better parameters for itself in negotiating participant levels, based on a solid understanding of what service levels are doable, at a given price, for projects with different services/orientations.

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[11] This information is also critically important to the day-to-day operation of projects.

[12] And without the need for service delivery standards.

It may seem that we are focusing unduly on service intensity, but it is an issue that is often taken for granted in performance assessment. In K-12 or postsecondary educational systems, service intensity is a given. Students in a school system spend roughly equivalent amounts of time exposed to the educational intervention, and instructors in that system spend roughly equivalent amounts of time delivering the educational service. In SSS, however, there are no rules with respect to these basic elements of service delivery. The only requirements have to do with the kinds of services that can be provided, not the amounts of service or the amounts of staff time that should be devoted to service delivery. As a result, it seems pointless to design student outcome indicators and measurement systems and collect substantial amounts of data without knowing something about the variability in student exposure and staff "inputs."

In short, then, we propose:

- Defining "participant" based upon a minimum level of service, with an auxiliary participation category for persons who do not meet the minimum level but who remain attached to projects (the levels may be different for services in freshman and subsequent years);
- Developing a taxonomy of SSS services that is logical and that has sufficient detail that projects will be able to place their activities in appropriate categories;
- Creating indicators of service intensity for projects as a whole and for broad types of services (counseling, peer/professional tutoring, supplemental instruction, etc.); and

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[13] These projects generally have other sources of funds and large numbers of disadvantaged students on campus. They may want to serve more students with SSS resources and other resources combined in order to avoid concerns about supplanting.

- Publishing national data on the range of project services and intensities in relation to resources so that projects can gauge their performance in relation to that of others, and to enable a better overall understanding of how much service can be delivered at a given price.

Implementing this set of indicators will require increases in data collection efforts for some projects. As we have noted in previous reports, some projects do not keep their records in ways that can yield service-intensity information. The information on services delivered is usually organized by a staff person rather than by a student. For example, a paper form will show a tutoring session with the name of the tutor at the top. It will then list all the students who received any tutoring during the session. The form will be placed in the staff member's file.

To implement the proposed system, it will be necessary for some projects to modify their recordkeeping systems so that they can enter a notation in the student's file each time a service is provided to the student, or aggregate such information at the end of a grading period or other length of time.[14] These records would be similar to those kept by the 28 projects that were part of the National Study. At this point most projects have access to a computer for recordkeeping.[15] Once a recordkeeping system is in place, it should be fairly easy for a clerk or other worker associated with the project to enter the data based upon the kinds of data forms the project currently uses; scannable forms could also be used. In addition to their use for evaluation purposes, the records will be of more immediate benefit to the projects, enabling them to call up service data for each participant on an ongoing basis, a critical part of service delivery.[16]

As developed for the National Study, the service provision forms require detailed data on the duration of a service for each participant. Three alternatives to collecting intensity are mentioned below.

- Record exact length of contact at same time that the contact itself is recorded (10 minutes, 40 minutes, etc.)

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[14] Some projects already use clerical personnel to perform this function on an ongoing basis.

[15] Several types of software for keeping student services records are available.

[16] While this reporting might appear to be an additional burden on projects, we would argue that it is the initial setup that requires effort. Once in place, many projects find that a clerical worker can enter the data weekly (or by quarter or semester) without much effort. Further, the time savings in knowing exactly how much service each participant has received is great. For example, a counselor preparing for a session with a student no longer has to consult several other people (tutors, workshop leaders, SI instructors) to find out whether the student has been attending sessions regularly. Additional information can also be added to these systems (e.g., data showing student progress) if the project desires it.

- Record in standardized units the average length of service (e.g., tutoring-1 hour).

- Record total hours of each contact by specific service (this would not give student-level information, rather benchmark levels).

As already noted, it will be necessary to decide whether to treat differently (and if so, how) group services as opposed to individual services in determining the intensity of the contact.

Determining the Indicators for Student Outcomes

The SSS legislation seeks two overall goals—college completion and transfer from 2-year to 4-year institutions.[17] In addition to measuring these accomplishments directly, a variety of intermediate indicators could be used to measure project success. These possible indicators include the following:

- **Credits earned:** College completion depends on acquiring sufficient credits and the correct allocation of credits to meet various subject-matter requirements. Credit accumulation is most meaningful after the first year because colleges differ in how they treat remedial courses, which generally are taken in the first year. A difficulty, however, is that credits cannot easily be compared across programs.

- **Completion of various within-institution statuses:** At some institutions, there are benchmarks of progress toward completion beyond credits. These include such items as completion of freshman or junior year, completion of a developmental or remedial program, completion of lower division or general requirements, and the like. These benchmarks are not the same for all institutions, however.

- **Retention:** Although students often leave and return, steady progress toward completion is viewed as desirable. Students who leave and return generally take longer to complete college and are less likely to earn a degree.[18] Various forms of retention may be examined, including

    - retention to the end of a semester (or quarter),

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[17] Recent legislation also calls for establishment of college atmospheres conducive to completion by disadvantaged students

[18] Students may return to the same institution or a different institution.

  - retention to the end of a school year,
  - retention to the next school year (i.e., the student returns without a break in studies),
  - retention to a subsequent school year (e.g., retention from the first to the third year in school).

- **Degrees/certificates earned:** Graduation is the most direct indicator of college completion. It should be noted that graduations may take place at various levels within postsecondary institutions. These include

  - graduation from a 6-month program,
  - graduation from a 1-year program,
  - graduation from a 2-year program, and
  - graduation from a 4-year program.

  Some of the less-than-4-year graduations are terminal, while others may be intermediate points in progress toward a 4-year degree. It is important to remember that many students enter institutions with less-than-4-year programs not intending to complete a 4-year program (or sometimes even a 2-year program).

- **Developmental program completions:** Some SSS projects are specifically designed to assist students engaged in developmental or remedial studies. Because such students rarely make regular progress toward a degree, it may be reasonable to adopt standards for completion of remedial programs in addition to (or prior to) other completion standards in those projects.

- **Transfer from 2- to 4-year institution:** As already noted, this is an explicit goal of the SSS program.

- **Enrollment in graduate education:** This is currently a rare goal among projects, but as a new area of service delivery (assistance in preparing for graduate education), its prominence within the SSS program may increase.

This list presents too many indicators for a simple performance system appropriate to a wide range of projects. From among these, it will be necessary to select indicators that best reflect the objectives of the SSS program, that are fair to all projects, and that can be most easily implemented. Individual projects may wish to add additional indicators that reflect their local situations and goals.

With respect to applicability across institutions, it would appear that GPA and retention within the same institution are important indicators. They are almost universally applicable across postsecondary institutions and are generally considered important benchmarks of educational progress. Many SSS projects already use these indicators to assess their performance. The data for these indicators are also widely collected by institutions and available to SSS projects. On the other hand, indicators that (almost by definition) require tracking of students who leave the grantee institution (transfer from 2- to 4-year institutions, enrollment in graduate education) are the most problematic.

Decisions on indicators should not be based upon ease of data acquisition alone, however. For example, graduation from a 4-year institution is a basic goal of the SSS program and should not be overlooked as an indicator even if it is difficult to implement. We could consider retention at the grantee institution and graduation from the grantee institution as interim indicators, with a longer term objective of finding a reliable way to measure overall graduation rates among all SSS participants—including transfer students and those not continuously enrolled (possibly through a periodic national study). And there is an argument to be made that continuing at the same institution—an indicator that can be easily measured (e.g. retention to next academic year)—enhances the likelihood that a student will graduate from college within a typical length of time. Movement among institutions would appear to decrease the likelihood of graduation.

We propose that the same limited set of outcome indicators should apply to all SSS projects, independent of differences in the types or mixes of services the projects provide. This approach is important for two reasons. First, if we wish ultimately to be able to compare performance across projects we need to ensure uniform data definitions. Second, the system should reflect the behavior of the projects, but it should not have direct effects in changing (or distorting) the project participants or the services provided in undesirable ways. By collecting data on the same broad indicators from all projects, we are less likely to cause projects to select a particular set of services or participants over others (in the short term) than we would by tailoring indicators.

At the same time, however, more service-specific indicators (e.g., performance in a particular course) that show outcomes of specific services (e.g., course tutoring) provide valuable data and have important meaning to project staff. Performance data on these outcome indicators are used by the staff to assess how well they are doing their job on a day-to-day basis. For example, project staff need to know if the tutoring they provided enabled students to pass the course and/or if the counseling they provided encouraged students to stay in school to the end of the semester. This is the kind of outcome data that leads to fine-tuning of services by staff members and may be critical to project improvement. One way to incorporate these data into a performance system would be to provide projects with assistance in setting up data collection methods that allow them to examine their own performance on these indicators. At the same time, however, any national performance assessment that looked at specific services would be postponed until much more information was obtained about overall student performance.

In short, a reasonable approach is to start simple and build the number and range of indicators over time, particularly as data availability expands. Initial indicators should be ones for which valid, reliable data are readily obtainable from institutional sources and project sources. They should be applicable to most projects and central to the objectives of the SSS program and to all grantees. Retention is the best single measure because it is least subject to manipulation. Monitoring GPA could result in changing the institutions' grading curves, especially within classes for SSS students. They should not present a major data collection burden for project staff. Given those requirements, GPA and retention within the same institution might well be a good place to start.[19] Credits earned could also be included but would require analysis by year-in-school cohorts (i.e., freshmen, sophomores analyzed separately).

Population: Whose performance would be measured? As we have already discussed, there is a need to define "participant," in part to ensure that students included in an outcome assessment are obtaining sufficient service to be measured. Even if persons with extremely limited exposure to SSS services are excluded, however, there are additional questions about whose performance should be included in analysis. For example, many projects weight their services to the freshman year. Although they serve other students, the bulk of participants are just starting at the institution and this fact is reflected in the nature of the services provided. Further, a national performance assessment system that will eventually compare the performance of all the grantees should be developing comparisons among "like" participants. If one project catering to freshmen shows a 1-year retention rate of 60 percent, while another catering equally to all students shows a retention rate of 80 percent, the comparison is not particularly useful. It can be argued that all projects should focus the outcome indicators (and standards) on the performance of similar students with respect to service levels and stage of educational career. (Process indicators, on the other hand, should include all participants unless specifically aimed at determining the extent of a specific service, for example.)

Nonetheless, there are also reasons to include all participants in indicators and standards. The most important reason is that any limitation of assessment could lead the projects to make choices about who to serve in ways that would "game" the assessment system. If projects know that only the performance of one subgroup "counts" for assessment purposes, they may well shift their service focuses in ways that are not intended. This is an issue that requires considerable attention. It may be that two sets of outcome standards would be developed—one for a subgroup of project participants with a threshold amount of service that is comparable across a wide range of projects and another (more limited set) for all participants in projects.[20]

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[19] These indicators would also probably reduce the outcome reporting burden on projects compared to current requirements.

Timing: When would performance be measured? The main outcome indicators that we have suggested for initial inclusion (GPA and retention) should likely be measured proximate with the services the project provides. The most convenient point would be at the end of an academic year and the start of the next, but a good argument can be made that measurements should be taken at the end of semesters or quarters. As we learned from the longitudinal analysis of the National Study, many projects focus on delivery of services over rather short periods of time, with participants typically receiving services over 2 or 3 months. Projects that focus heavily on fall services may perform differently than those focusing on year-long services. With respect to retention, it would seem to be most reasonable to measure retention to the beginning of the next academic year after the one in which services were obtained (so some of the people whose behavior would be measured would still be enrolled in SSS, while others would not).[21]

The obvious exception with respect to proximate indicators is college completion. This is a basic goal of the SSS project and should eventually be included in the performance system even though it may well occur years after project participation (or after the most intensive period of project participation).

The outcomes study suggests that services do have a persisting impact. Thus it seems best to focus on both year-by-year and cumulative outcomes at the same institution. As we have already noted, the ability of projects to track students after they leave the institution is limited (and varies across projects); therefore, we do not believe that it is feasible for most projects to conduct followups of students who leave the institution. The experience of the National Study itself shows how difficult it is to carry out such followups. Asking projects to track students who have left the institution will lead to very different rates of followup and results that are unlikely to be comparable across sites.

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[20] Another option would be to weight outcome data. For example, a project that showed positive outcomes for participants with more than the threshold amount of service but few participants receiving services beyond the threshold would not be as highly rated as one that showed similar performance outcomes but a much greater percentage of participants above the threshold service levels.

[21] This approach has implications for current performance report timing. All outcome data are now geared to performance at the end of a school year. This is reasonable for indicators such as GPA and credits earned, but is not useful for retention (since retention to the end of a school year is not a very useful retention indicator).

The problems of tracking students and the gap in time between treatment and outcome suggest that we should proceed cautiously with respect to the college completion indicator. One approach might be to collect data for a nationally representative sample of participants for several years and then assess whether there is a benefit to collecting the same information project by project. It might turn out that the proximate indicators (such as retention at the same institution for 1 or 2 years or completion at the same institution) are good proxy indicators for overall completion rates. In that case, it would be sufficient to collect the more readily available data and encourage projects to develop goals for retention that reflect levels of 1-year (or 2-year) retention associated with prompt or ultimate college completion.[22]

DEVELOPING STANDARDS FOR THESE OUTCOME INDICATORS

Deciding on the range of initial outcome indicators is relatively easy compared with deciding on how to set goals or standards for each of the indicators. In this section we discuss issues in the development of standards. We believe that outcome standards should be developed in line with certain principles. These include the following:

- Fairness—the goals or standards should take into account the institutional context and seek to add equivalent "value" to current student performance (or challenge projects equally). This is clearly a difficult but critical objective.

- Simplicity—the project staff should understand clearly the standards to which they will be held.

- Ease of implementation—data on which the performance assessment system relies should be easily obtainable and likely to be reliable and valid. (To meet this objective we have limited the initial indicators to items where data should be readily available.)

- Nondistorting—the goals/standards should not distort practice in undesirable or unintended ways. The goals or standards should not encourage projects to make unjustifiable changes in services or participants solely because they believe that these changes will make it easier to meet goals. For example, we do not wish to encourage projects to "cream" participants or switch the services offered solely because they believe

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[22] The National Study may well yield useful information on the point after the next student followup.

> these changes will make it easier to meet certain goals. On the other hand, we **do** wish to encourage changes that incorporate what has been learned about the antecedents of successful outcomes.

It is not so easy to design a system that meets these objectives. A number of recent studies have noted that a fair system is often not easy to understand because it must rely on relatively complex concepts to measure performance gains. Most notable among these is the construction of measures that show what performance would have been likely to have occurred in the absence of the program. It is also difficult to avoid designing a system that does not encourage "gaming" such as fine-tuning participant lists to achieve specified ends.

We begin with the observation that insufficient data are currently available to set national student outcome standards for SSS projects. There are too many factors that affect student outcomes to provide a model that will be appropriate for every institution. Further, while the data set from the current National Study has a wide range of student characteristics, it provides only a limited ability to examine variations in institution and program characteristics. Accurate and comprehensive information to develop precise standards will require several years of data collection from actual performance at the full range of grantees.

Further (within the range of program mandate), outcome goals should reflect what projects seek to accomplish. Once a coherent data collection system for measuring service delivery and outcomes is in place, projects should be encouraged to set realistic goals that reflect their clientele and institution and that provide a challenge to improve. The key to uniformity (and fairness) in this exercise is that the process of setting goals should be based upon data elements roughly similar across sites and that the goals that are set should be of relatively equivalent challenge. The federal government should establish procedures to ensure that the project-level goal-setting process is uniform and systematic, and federal officials should review project goals (especially those that count for prior experience points) to make sure the system is working fairly.

There are various performance parameters, or points of reference, that projects can use in establishing project-level outcome standards. These include the prior performance of the individual SSS project (baseline performance), the overall performance of the grantee institution, the performance of comparable students at the grantee institution (if such data are available), the performance of all students at comparable institutions without SSS grants, and performance of other SSS projects at similar types of institutions. Using all of these points of reference assumes that standards are relative—that not all projects would be expected to meet exactly the same levels of performance, but rather that projects would be expected to meet standards in line with the conditions that exist in their institutions. However, it may be possible that at least some standards could be developed that could be met by most projects, or by most projects located at institutions serving similar students.

Projects may wish to look first at outcomes for all participants and then at outcomes for subsets of participants based upon service and/or service intensity or other project-level characteristics.[23] This approach keeps the national system simple and allows for aggregating project-level information and conducting national comparisons on a few indicators across like institutions. It also keeps the focus on national program goals and mitigates against undesirable "gaming." Our main concern is that terms (such as "participant") and outcomes be precisely defined and uniformly applied.

Institutional conditions do have a powerful effect on participant composition yet are largely beyond the behavioral reach of the projects to manipulate. Therefore, varying the goals or standards in line with institutional conditions would appear to make the goals appropriate to the projects (i.e., fair) and would have little perverse effect (i.e., would not encouraging gaming). We propose that projects develop project-level goals/standards taking into account institutional characteristics in the following ways:

At the grantee institution:

a. by taking into account the likely overall institutional student performance with respect to the performance indicators used by the SSS program (GPA, retention, etc.) for the institution in which the project is located (and the extent to which SSS participants differ with respect to institutional norms).

b. by taking into account the expected outcomes of students comparable to those enrolled in the project but without such project participation within those same institutions (if such data are available).

c. by taking into account the past performance of the SSS project where such data are available (this can be done by all but new projects).

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[23] We are proposing a threshold of service for "participant" status with information on how many of the total participants reach the threshold. Outcome data could be weighted by this information.

Outside the grantee institution (if grantee data are not available):

d. by taking into account the performance of all students (or disadvantaged students) at comparable institutions without SSS projects.

e. by examining the performance of other SSS projects in comparable institutions.

Presumably, SSS participants would not be expected to perform as well as typical students in the same institutions (since they are more likely to be disadvantaged in various ways). For example, they may enter with entrance examination scores that are 10 percent lower on average and, hence, might be expected to earn GPAs (or otherwise perform academically) approximately 10 percent worse, on average. At the same time, they might be expected to perform somewhat better than students with the same level or type of disadvantage within the same institution, since they have the advantage of SSS participation (and, possibly, the motivation to seek service). Ideally, initial project-level standards of performance might be set within the resulting range. In other words, if a grantee institution as a whole had a retention rate to the next year of 80 percent, but the retention rate for disadvantaged students (comparable to SSS participants) was 60 percent, the retention rate standard for SSS participants would likely be set somewhere between 60 and 80 percent (based upon federal guidance).[24] If, however, the past performance of the project was considerably lower than expected, it might be necessary to determine if there were mitigating factors and, if so, to set a lower standard initially. In short, there is an analysis or discussion that should take place as projects set goals and justify those goals in their applications.

Although all institutions do not measure student outcomes in precisely the same manner, there are increasing commonalities in measurement. The IPEDS data requirements and pending Student Right to Know rules, as well as provisions of the National Collegiate Athletic Association (NCAA) seem to be having a considerable effect in standardizing measurement. It is fairly common among 4-year schools to identify a cohort of first-time, full-time freshmen and then track its performance at least as long as its members remain at the institution, eventually providing 4-, 5- and 6-year graduation rates.[25] In addition, many universities with institutional research offices carry out a wide variety of additional data collection and tracking exercises for different populations. These data could supply the point of reference for the institutional outcome rates (items a and b above). These requirements are more problematic at 2-year colleges, where retention and completion data are more difficult to obtain and are less uniformly defined. At 2-year colleges, projects may have to rely upon project baseline data more often (item c) and await the development of a national SSS database on performance at 2-year schools.

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[24] This discussion assumes a uniform method of computing institutional rates and rates for comparable students to SSS participants. We recognize that such uniformity is currently problematic (especially for identifying comparable students). It is possible that Student Right to Know rules may improve the situation, but it may also be that SSS will need to establish a uniform computational method for use by institutional research offices.

From the experiences gained during the National Study, we have seen that it is difficult to identify a comparable group of students to SSS participants at the same institution (item b) even though the current performance reporting form requests such information. First, institutional records are often not sufficiently detailed to allow matches on all important characteristics.[26] To identify appropriate comparison group members with institutionally supplied student files, the National Study undertook relatively sophisticated statistical procedures. Even then, however, surveys of participants and comparison group members showed that comparisons were more advantaged. Analysis of student outcome data has required additional statistical analysis to control for these prior differences. Projects should work with institutional research offices to obtain data on comparable students whenever possible, but they should be prepared for difficulties in making exact matches. It may well be the case that most 2-year schools and a sizable number of 4-year schools will be unable to identify appropriate comparison groups.

Even when data for comparable students are available, adjustments would be needed where SSS participants constitute the bulk of disadvantaged students at a school. In these cases, the outcomes for disadvantaged students as a whole are not meaningful, and it might be necessary to seek an alternative way of determining the expected retention rate without the project. One way might be to observe the outcomes of comparable students at similar institutions (in terms of type, governance, student mix, etc.) that do not participate in the SSS program.[27] Or, project baseline performance by SSS participants at the institution over several years could be substituted.

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[25] The September 21, 1995 NPRM for Student Right to Know calls for tracking students for 150 percent of the "normal" (or minimal, or theoretical) time needed to complete degrees—roughly 6 years at 4-year institutions and 3 years at 2-year colleges.

[26] Sometimes the difficulty occurs because the SSS project enrolls all or almost all of the most disadvantaged students at the institution.

[27] This approach would be even fairer to SSS projects in that institutions without SSS would also be likely to have fewer support services overall (based on what has been learned in several national studies). Such institutions would, therefore, be expected to show performance of comparable students that is somewhat lower than in schools with SSS grants.

If these approaches did not yield sufficient information (for example, a new project would not have baseline data) it might also be possible to look at the performance of a range of SSS projects in similar institutions and set a standard somewhere within that range. Again, some of these methods require a national database on performance that will only develop over time.[28]

In general, standards should be developed that take into account institutional conditions, but there should be opportunities to use other data sources if the need arises. Providing data from outside the institution, and outlining the methods for using them, would be a federal responsibility. Over time, as the availability of institutional data across sites increases, it might be possible to rely upon them more heavily in goal setting.

Once data on comparable performance are available and we agree that goals should be established for a few important indicators, how do projects decide on the specific outcome goals they wish to adopt? When we say that we want to adopt goals to improve the outcomes of the SSS program, what types of improvement do we envision? First, the national SSS program is clearly interested in raising overall (or average) performance at each project. Federal rules on goal setting should reflect that concern, and project goals should be reviewed to make sure that goals affecting all participants are established. But projects may also be interested in other goals as well.

At present, project outcome goals also reflect other objectives. For example, some projects have goals for improving the performance of students at the "high end" (i.e., improving the performance of those participants likely to perform well with limited additional assistance; for example, 30 percent of participants will obtain GPAs of 3.0 or better). Projects also target subgroups of participants by focusing indicators and standards on the performance of students in developmental or remedial programs. The ways in which performance indicators are selected and goals established influence the types of changes that occur in projects. It is important that indicators are selected and standards are established that reflect policy concerns and that logically reflect the intended performance changes.

In conjunction with minimums or averages, there are reasons that projects may want to adopt more targeted goals. Projects geared to students who need basic skills remediation may be far more concerned about how those students perform on a skills achievement post-test than about overall retention or GPA outcomes. Projects in community colleges or 4-year schools with large part-time enrollment and low graduation rates may focus their scarce resources on full-time students or other subgroups of students who are more likely to complete a degree. Recent changes in the federal SSS legislative goal also seem to endorse high-end goals. When transfer from 2-year to 4-year institutions was added, some community college projects shifted their emphasis to serving students with transfer potential.

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[28] We suggest in the next section that maintaining such a database should be a federal responsibility.

THE FEDERAL ROLE IN THE PERFORMANCE SYSTEM

Throughout this chapter we have noted various federal responsibilities in the design and operation of this performance system. These include

- Developing (in conjunction with the SSS projects) a taxonomy of services and a way of measuring service intensity (and testing it with selected projects);
- Refining the data collection forms (participation, services, outcome) to reflect the revised system (and testing them with selected projects);
- Establishing guidelines for local development of student outcome goals (using institutional and project baseline data);
- Reviewing the goals projects set to determine whether they are fair (equally challenging) given local conditions, baseline project performance (or national performance data, if and when available), and what is known in general about the effects of SSS;
- Providing technical assistance to projects in implementing data collection and in assessing their performance; and
- Compiling a national database on project performance in different types of institutions and with different mixes of students.

To ensure that the performance assessment system and project-level activities are implemented smoothly and that they generate useful data, the federal government should consult with a wide range of projects, associations, and other interested groups in the design of the program. This cannot be a top-down process or it will never be accepted and used to advantage by the projects. One way to approach design would be to convene a national meeting (or series of smaller meetings) of interested parties and work out agreements on the range of indicators and the methods for generating standards.

After a design phase, a detailed report on the possible operation of the system would be generated and circulated for comment. A comment period would be followed by further changes as needed. The final plan would be a detailed description of the system with definitions of all key terms and a step-by-step guide to implementation.

Once a plan is adopted, officials would design the taxonomy and data collection forms, developing the needed instructions and definitions. In drawing up these documents, attention should be paid to projects that already operate computerized data programs and collect much of the data called for in a performance system. A pilot test with willing sites (for which this type of data collection would be a new experience) would follow, with revisions to the system as needed.

Initial technical assistance for implementation among all sites would bring project staff together in a series of small meetings to learn how to implement the system in their projects. Federal officials could provide all needed definitions, guidelines, and data collection forms, and could recommend software needed for recordkeeping as well as for aggregating institutional records (this is especially important in those cases where the institutional research office cannot perform the function).[29] The meetings would also set in motion the plan for submission of project-generated goals/standards and data to the federal office.

In assessing the fairness of local goals, one approach for federal officials would be to array the projects (by institutional type, admissions requirements, and other indicators) and then look across like institutions to see the range of proposed goals, identifying for further study projects that appear to be outliers (they propose considerably more rigorous or less rigorous outcome goals, for example). Over time, the federal government will acquire and aggregate local performance data that will make it possible to create a range of benchmarks for performance in different institutional contexts. This set of responsibilities requires federal capacity to collect, scrutinize, and analyze data.

Ongoing technical assistance is the heart of the federal role. Projects staff may understand well enough what is expected of them, but it is only when they start to implement the system that they will recognize the issues and problems likely to arise. It may be the case that parts of the system are not workable and there is a need to rethink them. Too often a poorly designed system is allowed to continue with the result that little attention is paid to the results.

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[29] We recommend that future grant awards include a requirement that institutional officials will conduct data collection and analysis. Many projects are unable currently to take advantage of institutional research expertise available at their campuses.

That is essentially what has happened with outcome data collected in the current performance reports. The federal role will be to watch the implementation process closely, visiting projects to determine whether the performance assessment system is working as planned. Periodic validity checks will ensure that the projects are collecting data accurately and analyzing the data in the correct manner.

Over time, as more information is collected about actual project performance across the country, it will be possible to fine tune the outcomes that might be expected under different institutional circumstances or for different subgroups of participants. Eventually, it should be possible to move from project-level goal setting to national goal setting. As data are amassed about actual project performance in different types of institutions with different performance starting points, federal officials could begin to propose national norms. Eventually, the federal government could provide a set of guidelines, adjusted periodically, that would show providers what level of performance others with similar clientele and institutional characteristics have attained.

If it is eventually determined that different goals/standards for specific types of services (or different standards for projects that emphasize different services) are desirable, development of this system would also be a federal responsibility. Undertaking indicators of, and standards for, outcomes to specific services will require far better data collection systems than currently exist. It will also require several years of baseline data collection from projects on service delivery once new data collection systems have been developed.

10. CONCLUSIONS

This chapter discusses the major findings of the study in the context of their significance for the implementation of SSS. We first discuss the current status of the SSS program and implications for the local SSS projects in providing services, and for the federal government in administering the program. The study also provides rich data on the characteristics of students that are related to retention, and these findings have important implications for the provision of supplemental services. For this reason, the major findings on retention are also summarized. Finally, we focus on the implications of this study for future research.

HIGHLIGHTS

- SSS was successful in targeting the most disadvantaged students within the institutions.
- SSS services did not supplant the offerings of non-SSS services, and may well have encouraged the receipt of and offering of non-SSS services.
- SSS is intentionally diverse in type, intensity, and organization of services, and it is not reasonable to expect a uniform effect across individuals or institutions.
- SSS improved student outcomes in each of the three areas examined: college GPAs, the total number of credits earned, and retention in college.
- The degree to which student outcomes were affected varied according to the students' levels of participation in SSS. The students who participated the most were the ones who experienced the greatest improvement in outcomes.
- The method in which SSS programs were organized appeared to be related to student outcomes, with home-based programs (which offered a center on campus for the students) or blended programs that integrated SSS and other services standing out as most successful.

- Peer tutoring, workshops, cultural events, and instructional courses that were exclusively for SSS students stood out as being especially related to positive student outcomes.

- The findings suggest that there was a more general pattern of disadvantaged students needing an integrated package of both academic and nonacademic services.

- Improvements in student outcomes from services received in the first year persisted to later years.

- A key decision for federal administrators and projects is whether to serve fewer students more intensively or more students less intensively. Key challenges for projects are how best to motivate students to take advantage of the services available and how to remove barriers to program participation.

- Performance assessment within SSS needs to take into account service diversity in type, intensity and organization.

- The SSS evaluation demonstrated that SSS services are effective in improving student outcomes. A next step is to focus research more specifically on evaluation of service and organizational alternatives, perhaps utilizing an experimental design. A key issue is how the resources can be used most effectively and the program can be designed to foster the greatest participant success in college.

CURRENT STATUS OF SSS

As the first step in evaluating SSS, considerable information was collected about how the individual programs are operated. We review major findings below.

Targeting

The SSS program was successful in its attempt to target supplemental services towards the most disadvantaged students. In fact, one of the methodological difficulties in this study was the absence of a group of students who were fully comparable in their disadvantages but did not participate in SSS. In some institutions, participation in SSS was required as a condition for admission for the most marginal students, so that no comparable students could be found; in others the requirements were less formal, but substantial differences still remained between SSS and non-SSS students.

Additivity

One of the concerns of federal policymakers was that SSS should not simply replace other methods of providing supplemental services, but that it would lead to an increase in services over what otherwise would be received. This study found that participation in SSS was associated with the increased receipt of non-SSS services; further, even non-SSS students tended to show higher participation in supplemental services at institutions that offered SSS programs than at institutions without SSS programs. One cannot necessarily ascribe all of the increased participation to SSS. In part, SSS participation may be an indication of students' willingness to make use of supplemental services (especially at institutions where SSS participation was not required as a condition for admission), so that these students would have made high use of other supplemental services. Similarly, some institutions may have a stronger orientation towards providing supplemental services than others; the offering of SSS programs may be an indication of such an orientation rather than a cause of it. In any case, SSS services did not supplant the offering of non-SSS services, and they may well have encouraged the receipt and offering of non-SSS services as well. This is consistent with one of the major goals of the SSS federal program: to foster a college "climate supportive of low-income first-generation college students."

Diversity of Approaches

SSS was intentionally designed to allow considerable flexibility in local programs' provision of services so that every program could be tailored to meet the specific needs of each participating institution. This study confirmed that the result was considerable diversity among SSS programs, including differences in the organizational structure, in the types and amounts of services offered, and in students' participation in services. One implication of this diversity is that it is not reasonable to anticipate an uniform SSS effect among SSS participants because the participants differ too greatly in what they receive.

Levels of Participation

Students varied greatly in their level of participation in SSS, with many students effectively having few differences from non-SSS students in their receipt of supplemental services (e.g., 9 percent had only one contact in the freshman year, and close to 30 percent participated for 5 hours or less). The variation in students' participation tended to further increase the program's targeting of disadvantaged students, with the most disadvantaged students tending to show the highest participation rates. Among those students who showed low rates of participation was a mixture of relatively advantaged students (who possibly may have had less to gain from SSS participation) and students who generally showed low rates of involvement and who were especially at risk of dropping out.

STUDENT OUTCOMES

Overall Effects

On balance, SSS participation resulted in improved student outcomes in each of the three areas examined: students' college GPAs, the total number of credits earned, and retention at the same institution and at any institution of higher education. Students' GPAs were increased by a mean of 0.15 in the first year, 0.11 in the second year, and 0.11 in the first 3 years combined. The number of credits earned was increased by a mean of 1.25 in the first year, 0.79 in the second year, 0.71 in the third year, and 2.25 in the first 3 years combined. Retention at the same institution was increased by 7 percentage points for retention to the second year (i.e., from 60 percent to 67 percent), and by 9 percentage points for retention to the third year. Retention to the third year at any higher education institution was increased by 3 percentage points.

Importance of Level of Participation

The degree to which student outcomes were affected varied according to the students' levels of participation in SSS. The students who participated the most were the ones who experienced the greatest improvement in outcomes. The level of participation was not simply due to differences among institutional programs (though if a program did not offer a particular service, then a student could not receive it through SSS), but also to differences among students within any given institution. One effect of this difference in participation rates was to further increase the extent to which SSS was targeted towards disadvantaged students, since there was a general tendency for students who were more disadvantaged to receive more hours of services.

ORGANIZATION OF SSS PROGRAMS

The ways in which SSS programs are organized appear to be related to student outcomes, with the programs that stood out most being either home based (which offered a center on campus for the SSS students and which primarily differed from other SSS programs in offering a mixture of services rather than a single dominant service) or blended (which blended SSS and non-SSS services). Home-based programs were associated with improved student GPAs, and blended programs were associated with increased student retention.

SSS SERVICES THAT WERE PARTICULARLY EFFECTIVE

Some SSS services stood out as being especially related to student outcomes. Foremost among these was peer tutoring, which showed positive impacts on all three outcomes and over multiple years. Two other services—workshops and cultural events—also showed positive impacts on multiple outcomes and over multiple years, and instructional courses showed positive impacts on retention to the second and third years at the same institution. The effectiveness of these services was further supported by the findings for non-SSS services: non-SSS tutoring showed positive and statistically significant effects in the year that it was received, and non-SSS cultural enrichment activities also showed a positive and statistically significant relationship to student outcomes over multiple years.[1]

It is not necessarily true that the remaining services were ineffective. In fact, though counseling failed to show a positive and statistically significant effect in the first year, it did show such an effect in later years. Other services may have shown more consistent effects if they had been received by a larger number of students. However, given that some of the services that did show positive and statistically significant effects were not even offered by some institutions, it appears that the impact of SSS could be increased by more extensively offering and promoting those services that were shown to be effective.

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[1] For both tutoring and cultural events, it was not possible to distinguish between services received through SSS and services received outside of SSS after the freshman year.

INTEGRATION OF SERVICES

The findings on individual services also suggest that there was a more general pattern that disadvantaged students needed an integrated package of both academic and nonacademic services in order to meet all of their needs. This appears to be why home-based programs were correlated with increased GPAs (beyond the effect that would have been provided by individual services): home-based programs were characterized by offering a mixture of services (rather than a single dominant service), and students in home-based programs tended to receive a greater number of different SSS services and different non-SSS services. To a lesser degree, blended programs may also have differed by offering a more integrated package of services: students in blended programs tended to receive more non-SSS services than other students. There were other suggestive (but not conclusive) findings concerning the value of integrated differences: counseling appeared to be most effective when received in combination with academic assistance (rather than being received alone; however, the differences were not statistically significant), and it is possible that peer tutoring stood out in effectiveness partly because it addressed both academic needs and (through modeling) nonacademic needs.

THE PERSISTENCE OF IMPROVED OUTCOMES

While a major focus of SSS programs was to help freshman students in their first year at college, there was a positive relationship between SSS services received in the first year and student outcomes in later years. This finding suggests that the SSS services were not simply directed toward helping students with a particular course or problem, but rather were providing skills that would be useful at later times as well. Services that were offered in later years also appeared to be helpful, but seemed to reflect the changing needs of the students as their academic careers progressed: academic assistance appeared to become less critical (with a declining use and value of tutoring), and nonacademic assistance increased in importance (e.g., with a strong relationship between counseling and improved student outcomes). Possibly the academic deficiencies of disadvantaged students are the easiest problem to correct, while the nonacademic needs require a longer range approach.

FEDERAL ADMINISTRATION OF THE PROGRAM

The reports of this project have discussed a wide variety of issues in the federal implementation of the SSS program. This section reviews two important issues in the federal administration of the SSS program.

The Federal Choice to Serve Many and the Implications of That Decision

Volume 1 of the Interim Report for the study and this final report have both provided readers with a portrait of the overall statistics of the development of the SSS program from its inception in 1970 through 1995. The picture that has emerged shows a program that grew substantially in constant dollars during its first decade of operation, declined in constant dollars during the second, and has had a moderate increase during the third. That recent increase has not restored the program to its original level of per-participant spending, however.

Numbers of projects and per-participant dollars have not mirrored the funding ups and downs. During the years of rapid growth, federal TRIO officials added projects and participants at a sizable rate. Starting with 121 projects and 30,000 students in 1970, the program grew to 557 projects and 165,000 participants in 1979. In the following years, as funds declined, the numbers of projects did not. In 1987, when the program was at a relatively low point in appropriations, it included 663 projects and 152,000 participants. As a result, in constant 1990 dollars, per-participant cost declined from $1,123 at the program's inception to about $532 in 1987. Since the late 1980s, the numbers of projects and participants climbed only slightly as funds have increased. In 1995-96, per-participant funding stood at about $867 in current dollars and $744 in constant 1990 dollars. Recent amendments to the SSS legislation calling for minimum grant sizes have largely stopped the addition of new projects until all current projects reach at least a $170,000 floor.

The relatively modest dollars per participant were reflected in the moderate amounts of service provided by SSS projects. Our study found that in 1991-92, when per-participant funds stood at around $731, about 60 percent of participants received some form of tutoring with an average of 12 hours of contact, and about 80 percent received counseling with an average of about 3 hours of contact. About 22 percent received instructional courses taught by SSS staff, and the average number of hours of contact was about 57. From 10 to 20 percent received services such as cultural events, labs, and workshops, and the average number of hours of service for these services was 12 or under. These are moderate amounts of service given the ambitious goals of the SSS program—increased college retention and completion, and transfer from 2-year to 4-year institutions.

These service levels are of particular interest because of our findings about the relationship between exposure to services and positive student outcomes. In essence, the levels of exposure to services, along with the types of services received, are important determinants of positive project effects. Depending on the amount of funding available, the program may need to choose between having a small effect on a large number of students or a larger effect on fewer students.

Under present circumstances, however, there are severe limits on how much service can be provided since about $800 is available per participant.[2] One of the reasons we have emphasized the development of service intensity data in an assessment system is so that projects can gauge their performance on types and amounts of service delivered in relation to other SSS providers. There are sufficient differences in amounts of service currently delivered across projects to make us hopeful that greater attention to this issue will increase the overall amounts of direct service provided. Nonetheless, the current funding choices pose serious constraints on how much service can be delivered.

It may be helpful if there is a serious examination of participant levels in relation to types and amounts of services projects supply. The goal should be to establish parameters for grant negotiation that offer realistic guidance to projects, in line with the findings of this study.

Performance Assessment in SSS

There is considerable interest at the federal level in improving the accountability of all programs, including the TRIO programs. Both the Interim Report on program implementation (Volume 1) and this final report have discussed the current performance assessment system in SSS and the need for revisions. Because prior project performance can affect re-funding (through federal staff award of prior experience points), it is important that there be some indicators of performance that can be applied across projects. Weaknesses in the definitions and consistency in data that are collected currently make comparability on performance largely impossible. Further, certain important indicators--such as amounts of service provided--are ignored in the current system.

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[2] To get a rough estimate of the maximum level of service possible with current funds, let us consider the budget of a typical project with a budget of $200,000 (roughly the norm in 1994). From the case studies we can estimate that such a project has a professional staff of about three FTE persons and one FTE clerical person. It may also make use of work study students for additional clerical or tutoring assistance. The project may also have seven or eight peer tutors who each work 10 hours a week (a liberal estimate) during the school year. Overall, then, there are about 6,000 professional staff hours (not counting the clerical person), with 4,500 of those occurring during the school year, and another 2,100 tutor hours. According to current averages, a project of this size would be expected to serve about 250 students.

Assuming that project staff and tutors devote full time to direct services to students, which never really occurs, this project would have a maximum of 32 hours of service assistance available per participant. In the real world, of course, project staff engage in a wide range of administrative, management, recordkeeping, service preparation (e.g., preparation for instruction), training, and other tasks that do not entail direct contacts with students, reducing hours available. (They also take vacations, use sick leave, attend meetings, etc.) On the plus side, however, activities in which staff provide services to groups of students at the same time increase the student exposure per hour of staff time. Nonetheless, it is clear that the SSS is limited to providing a moderate level of service.

To address these problems, we suggest the use of a limited number of process and outcome indicators across projects (including, among others, the nature and amounts of service provided, participant GPA, and retention to the following year). Periodically, projects could track a cohort of first-time, full-time freshmen as long as its members remained at the grantee institution. The performance indicators should collect information on students who receive some minimum level of service, since otherwise the program is not likely to have much impact; however, the ratio of such participants to all participants might be taken into consideration in weighing project outcomes for prior experience points.

To implement these reforms requires an enhanced cooperation between the federal office and the local projects. First, a taxonomy of services with definitions (descriptions) will have to be created. This study has already described services in some depth as part of the report on the case studies, but additional clarification will be needed. Second, the performance reporting form will have to be revised to include the updated taxonomy and a format for reporting amounts of each service provided.

The revisions proposed in this report should be beneficial to projects as well as to the federal government. For example, publication of information on the range of services and service intensities across projects will enable project staffs to see the types and amounts of service offered by other projects and place themselves within the mix. At present, there is no way that projects can compare their effort in relation to others with similar resources. In addition, making available comparable data on a few student outcomes will allow projects to see how well they are doing in relation to other projects, taking into account similarities and differences in institutional types, services, resources, clienteles, and other distinguishing project characteristics.

RETENTION OF DISADVANTAGED STUDENTS TO THE THIRD YEAR OF COLLEGE

While this study has emphasized the role of SSS in college retention, the study has also generated an important database on disadvantaged students in college. The detailed information for SSS participants—baseline and followup surveys, service records, and transcripts—provides a rich data source and a perspective on retention not previously available. Chapter 5 in this report provides a portrait of these students at the 3-year point. This section summarizes some of the key elements in that portrait of disadvantaged students in college and draws some conclusions for policy and programming from the descriptive information.

College retention and tracking disadvantaged students. First, and foremost, these disadvantaged SSS students are staying in college at impressive rates. While it is true that the students we tracked were more likely than all freshmen to be in school full time at entrance, their overall retention rate of 77 percent at the third-year point approximates the national average, which reflects a far more advantaged population than the SSS participants. This finding about retention is important in lending support to the overall mission of SSS. It suggests that recruitment and financial aid policies promoting admissions, along with the provision of support services, can combine to enable a highly disadvantaged population to succeed in college.

These findings also show the importance of moving beyond data from a single institution to determine retention rates for disadvantaged students. By the second year of the study, 30 percent of the freshman-year study participants had taken courses at schools other than the one in which they initially enrolled. From a first-year base of 47 schools, during the third year we collected transcripts from over 800 institutions (although not all students attending additional schools had transferred—some students attended an additional institution without leaving the original one). Without a national study it would have been impossible to determine accurate college retention rates for this population.

It is also likely, however, that the SSS participants will take longer than average to complete college at both 2-year and 4-year institutions. As a whole (combining those SSS participants in school and not in school in the third year), more than half the sample were still classified as having freshman or sophomore status by the middle of the third year. Looking only at those enrolled at the third year, about one-third had not reached the junior-year level by the third year. Thus, it will be important to continue to track these students for several additional years beyond the nominal or "theoretical" completion year. A recent study of disadvantaged students who attended City College of the City University of New York in the early 1970s highlighted the need to track disadvantaged students for a considerably greater period than other students (Lavin, 1995).

Building student confidence. The students in this study retained their freshman-year confidence in themselves and in their educational goals over time. For those who remained in school, there was no diminution of confidence in academic ability and, to some extent, academic confidence was enhanced over time (55 percent of those enrolled in third year said they had greater than average academic ability compared with 46 percent of the same students the first year). Educational ambition declined only very slightly (fewer students reported they were seeking Ph.D.s in the third year than when they entered college). The findings about confidence and ambition suggest that what is important is the experience of college and of seeing oneself perform adequately; apparently, it is not necessary to excel to remain confident.

Prior experience. What students bring to college plays an important role in use of services and in whether or not students stay in school. In studying retention, so much has been made of the theory of integration and attachment to the institution that it is easy to lose sight of the importance of "priors" in predicting college retention. We find that those students who planned for college (e.g., took an entrance exam, visited college campuses) were more likely to stay. Further, those who had previously sought assistance (e.g., from high school counselors) were more likely to use support services in college. And, among these students, greater use of services (from any source) is positively associated with retention to the third year.

These findings have important implications for provision of support services. They suggest that there are important subgroups among disadvantaged students. Some students have learned to ask for help and to make positive use of assistance. Others who may need assistance just as much may have established prior patterns of accepting no help. It may take considerable effort to change attitudes (and for some students, attitudes probably will not change). It may also be that some students who have not reported seeking assistance in the past may simply not have been in environments where assistance was available. What is motivating for students who have already established patterns of service participation may not work with students who have not established those patterns. We may need to devise other approaches to help those students.

The importance of life experiences and of financial conditions. Independent of support services or academic performance, certain experiences while in college can affect continued college participation adversely. For example, getting married and/or having dependent children after entering college is positively associated with not being enrolled in the third year. Persons who were older at entrance were also less likely to be enrolled in the third year. In addition, students not enrolled in the third year cited finances as the main reason for leaving school. These findings suggest that SSS (and institutional) personnel concerned with increasing student retention probably need to pay as much attention to the noneducational needs and behaviors of students as they do to the educational.

Even among those in school in the third year, financial insecurity remains great. One of the most striking findings of this study is that financial insecurity does not diminish over time for this population. SSS participants were as likely to express financial concerns in their third year of college as they were in the first; those who were enrolled in the third year said they had "some" or "major" concern at a rate of 83 percent (at both freshman- and third-year points). This finding is important because of its implications for the way in which financial aid is structured by colleges. Many financial aid officials believe that when grant resources are scarce, front-loading grants and back-loading loans (i.e., increasing the loan-to-grant ratio in the junior year, for example) is a good way to attract disadvantaged students. The data suggest that because financial insecurity remains high, disadvantaged students may leave a school that requires them to assume greater loans over time.[3]

Given their financial insecurity, it is not surprising to find that, in the third year, two-thirds of the SSS participants were working while in school. It *is* surprising to find that they were working long hours, however, 26.6 hours on average, with about a third of the enrolled students working full time. Few of the working students expect to develop careers in the fields in which they are currently working (which are largely clerical and service).

In this context of financial concerns, it is interesting to note that parental support appeared to make a difference. Of those enrolled in the third year, 30 percent reported that parents were contributing $600 or more in the first (and third) years. Of those freshman-year participants not enrolled in the third year, only 21 percent reported a parental contribution in the first year. The actual dollars are clearly important, but there may also be symbolic effects of parental contribution, especially in low-income families.

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[3] For those enrolled in the third year, loans do appear more prominent as a source of assistance, but there is no way of knowing from the data currently available the importance of funds coming from loans rather than grants in a student's decision to leave school.

IMPLICATIONS OF THE STUDY FOR FUTURE RESEARCH

The study results have several implications for future research. When we began planning the National Study in 1990, we knew that there would be numerous challenges in trying to evaluate the SSS program and that previous attempts had been hampered by low survey response rates, imprecise records of services, lack of followup to additional colleges, and the absence of adequate comparison groups. As discussed above, the SSS projects themselves are intentionally diverse, with different patterns of clients, services, and project organization. For this reason, participant characteristics and service information had to be measured just as carefully as outcomes. One of the more significant implications for future research is the finding that *the evaluation could be successfully conducted*. This study is the first SSS evaluation to have high response rates and to collect sufficient service data to reasonably measure effects. The participating SSS projects were able to sample participants and supply the needed service-level information in a form that could be used. It is also clearly possible, if sufficient resources and time are expended, to track the students after they have left the initial institutions.

However, there are significant difficulties in selecting an equivalent comparison group. This difficulty comes from the fact that SSS often serves the most disadvantaged students in the institution, but also because insufficient information is available on student backgrounds, especially at 2-year institutions. Thus, sophisticated statistical techniques will have to be used to take into account the differences between the two groups.

Another implication is the importance of adequately measuring service type and intensity, given the diversity of SSS projects within the institution and the differences in service levels of participants within the same institution. Further, given that both SSS participants and comparable nonparticipants are likely to receive services outside of SSS, it is critical that these services also be measured. The method for measuring services may change as SSS projects become more integrated within the overall institution service delivery system. Future studies also must provide for the fact that SSS may have both direct and indirect effects. If this study had not allowed for the fact that the impact of SSS on GPAs will affect students' retention, much of the impact of SSS on retention might have been missed.

Next Steps in Research

A fourth implication concerns determining what additional information would be most useful to individual SSS projects seeking to improve their projects and to the federal administrators seeking to improve the overall SSS program. This National Study has demonstrated that SSS services can be effective in increasing college success for disadvantaged students. It has also shown that intensity of service is related to outcomes for certain services. The next step would logically be to focus more narrowly on testing different mixes of services and different ways of organizing specific service delivery. For example, the research suggests that while counseling alone did not show positive outcomes in the first year, it showed positive (though not statistically significant) results when received in combination with academic services. More research is needed in this area. The questions may be framed in terms of how best to make use of the limited grant funds to maximize positive impact on students.

Another critical issue concerns how to motivate students who need help to seek help. Our research suggests that motivating students to seek a service may be as critical to retention as the service itself. Research specifically designed to determine the best way to help motivate students to seek help when needed, or more directly to want to stay in college, may be the most useful to projects in the future.

Using an Experimental Design

Questions such as the extent to which service participation should be required, or the extent to which intrusive directive advising should be used, could be answered with small experimental design research studies that test the impact of alternative service mixes and types on similar students. These studies could be conducted by individual sites or groups of sites working in coordination with the federal program office, and with technical assistance from the Department of Education's Planning and Evaluation Service.

Link to Performance Assessment

The focus on performance assessment inevitably is linked to the discussion of future research. If projects begin to routinely keep records on service levels and to develop ways of utilizing student information systems, some of this experimental research in testing different service approaches could be incorporated into project plans. Existing projects interesting in developing and testing innovative service approaches could be given technical assistance at the federal level to move toward self-evaluation and the use of targeted research to identify the best practices in providing services to disadvantaged students. This would be a direction for future evaluation studies that is most linked to the congressional mandate that the research "examine current programs and identify program improvements" (P.L. 101-166).

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Appendices

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APPENDIX A

SAMPLING METHODOLOGY

SAMPLING METHODOLOGY

The National Study of Student Support Services employs a three-component sample. In the first component, a sample of 200 institutions with mature (funded in both 1987 and 1990) SSS programs was selected for the mail and telephone survey. In the second component, a subsample of 30 institutions was selected for case studies, and in the third component, students were selected from these 30 institutions to be the longitudinal study participants.

Sampling Frame

The sampling frame consisted of institutions of higher education (IHE) with mature SSS programs (i.e., those programs that had been in operation for 3 years or longer) that were funded in 1990. These IHEs were identified by using the 1987-88 SSS project reports file. This was the latest listing at the time of sampling. This list contained 658 IHEs with relevant project data that met the requirements of studying mature programs. Fifty-five of the 658 mature programs were deleted from the frame because the institution did not apply for an SSS grant in 1990, or the institution applied for a grant but was unsuccessful in securing it. As a result, the final sampling frame contained 603 IHEs.

Sample of Institutions for Mail/Telephone Survey

A stratified sample of 200 IHEs was selected for the mail and telephone survey. The purpose of drawing this sample was to estimate characteristics of IHEs with SSS programs and characteristics of the programs themselves. The questionnaires had items about important descriptors of the SSS programs and about the policies of the IHE concerning delivery of SSS and similar services.

A total of 18 strata were created for the sampling. Of these, 15 were formed by crossing the level of the institution (2-year or 4-year), the institutional control (public or private), a race variable based on the majority race of the students in the institution (greater than 50 percent white, greater than 50 percent black, greater than 50 percent other minority, no one race greater than 50 percent), and the size of the SSS program. Programs were classified as small if the expected number of participants for the 1991-92 academic year was less than or equal to 200, and large if the expected number of participants was greater than 200. The final three strata contained all the institutions that (1) were located outside the coterminous 48 states (that is, in Alaska, Hawaii, and the territories), (2) were privately controlled 2-year institutions, or (3) had SSS programs that served only physically handicapped students. The institutions selected from these three strata for the mail and telephone survey were not eligible to be subsampled for the case studies due to the potentially high cost of conducting case studies at these projects or the uniqueness of the projects themselves.

The allocation of the sample to the various strata was done in proportion to the square root of the total number of SSS participants projected for the programs in the strata. The sample was selected differently depending on the strata size. One of the goals was to give schools with large SSS programs a higher chance of being sampled, while ensuring representation for the schools with small SSS programs.

For institutions with large SSS programs (more than 200 participants), sample selection within stratum was done systematically using a probability proportional to size method, where the measure of size was defined as the square root of the total number of SSS participants in the IHE. One IHE was selected with certainty due to its large size. For institutions with small SSS programs (200 or fewer participants) and those institutions in the final three strata, the sample was selected systematically within stratum with each institution having the same chance of selection. Within each stratum, the IHEs were sorted by geographic region prior to sampling. Table 1 shows the sampling frame and the sample allocation for the 18 strata.

Table 1. Sample allocation by strata

Program size	Strata	Measure of size	# units sampled: project survey	# units subsampled: case studies
Small SSS programs	1: 4-year, public, ≥50% white	68	19	3
	2: 4-year, public, ≥50% black	9	3	1
	3: 4-year, private, <50% black	46	12	2
	4: 4-year, private, ≥50% black	20	5	1
	5: 2-year, public, <50% black	94	25	4
	6: 2-year, public, ≥50% black	7	2	1
	Subtotal		66	12
Large SSS programs	7: 4-year, public, ≥50% white	2,272	52	8
	8: 4-year, public, ≥50% black	305	7	1
	9: 4-year, public, <50% black & <50% white	250	3	1
	10: 4-year, private, <50% black	463	10	1
	11: 4-year, private, ≥50% black	193	4	1
	12: 2-year, public, <50% white	1,191	27	4
	13: 2-year, public, ≥50% black	143	3	1
	14: 2-year, public, ≥50% other minority*	214	4	1
	15: 2-year, public, all other*	121	3	
	Subtotal		113	18
SSS programs that are unique	16: 100% participants are handicapped	13	4	NA
	17: Located outside coterminous U.S.	31	10	NA
	18: 2-year, private	25	7	NA
	Subtotal		21	

*Strata 14 and 15 were collapsed when subsampling the case studies due to the small size of stratum 15.

NA = Not applicable.

Subsample of 30 IHEs for Indepth Study Sites

The purpose of the selection of 30 sites was to obtain indepth knowledge of the characteristics of the SSS programs through case studies and of the students they assist through the longitudinal study student sample selected from the 30 sites. The scope and breadth of the SSS programs vary by IHE, and the case studies were conducted to closely examine how the programs operate in a subsample of IHEs. This subsample was not weighted back to any national totals due to the small sample of IHEs.

The indepth study sites were restricted to IHEs in the coterminous U.S. that were not 2-year private IHEs or IHEs with programs serving only handicapped participants. Therefore, the subsample of 30 IHEs was drawn from the 179 IHEs selected from strata 1 through 15. The same allocation scheme was used as for the 179 IHEs selected in the first stage. Strata 14 and 15 were collapsed together prior to subsampling due to the extremely small total measure of size in stratum 15. Table 1 shows how the subsample of 30 case studies was allocated by stratum.

In each stratum, an originally sampled IHE was selected, plus two alternates for each of the 30 sampled IHEs. These alternates replaced the IHE initially selected only if there was no possible way of obtaining required information from the sampled institution.

Subsample of SSS Participants Within the 30 IHEs

Within the 30 IHEs subsampled, samples of SSS participants were drawn and student surveys, service records, and student transcripts were collected to obtain an indepth look at the SSS programs.

Two samples of SSS participants were drawn within each IHE. The first sample consisted of first-time, full-time freshmen, and the second sample consisted of nonfreshmen.

Freshman Sample. For the first-time, full-time freshman SSS participants, the study design called for 3,000 completed interviews or an average sample size of 100 freshman participants from each of the 30 IHEs. Assuming an estimated 20 percent nonresponse rate, a target sample size of 125 first-time, full-time freshmen was set for each IHE (100/0.80 = 125).

If there were 125 or fewer freshman SSS participants in an institution, or if fewer than 125 were expected to participate in the project, then all freshman participants from that SSS program were selected. If there were more than 125 first-time, full-time freshman SSS participants, subsampling was done. Study staff requested lists of all freshman participants from these IHEs so that a systematic sample could be drawn. Sometimes a complete list was available at the time of sampling and was used to select the 125 participants. In many cases, no list was available and the sampling had to be done on a flow basis as students came to receive services. When the sampling was done on a flow basis, an estimate of the total number of SSS participants provided by the institution was used to specify the sampling rate for an IHE. This resulted in some variability in the actual sample size.

The sampling rate within institution was determined by rounding up the target sample size (125) divided by the estimate of the total number of freshman SSS participants in the IHE. For instance, if there were 200 freshman participants in a particular IHE, the rate would be 125/200 = 0.625, rounded up to 0.7. Sampling the participants was done based on the last digit of the student's ID or Social Security number. This method was determined to be sufficiently random for sampling. Based on the rate, a list of numbers between 0 and 9 were chosen. These numbers were sent to the IHE, since the IHEs were executing the sampling from the lists, and they were instructed to sample all participants whose ID ended in the sampled numbers. From our example with rate = 0.7, seven digits between 0 and 9 were chosen randomly, and all students with IDs ending in one of the seven digits were sampled.

In a few cases, more than 125 freshman participants were sampled in schools with large SSS programs due to smaller than projected numbers of freshman participants in IHEs where all the freshman were taken into the sample.

Service records were obtained for the sampled freshmen. However, due to a smaller than expected total number of freshman participants from SSS programs in the 30 IHEs, baseline surveys were done on all freshmen, not just those sampled. No service records were collected for the freshmen that were not initially sampled. Transcripts were requested on all freshmen in the 30 IHEs.

Nonfreshman Sample. For the nonfreshman SSS participants, 1,800 completed interviews were desired, resulting in an average sample size of 60 nonfreshman participants from each of the 30 IHEs. This sample size of 60 nonfreshman participants per IHE was adjusted for an estimated 20 percent nonresponse rate, resulting in a target sample size of 75 nonfreshmen per IHE (60/0.80 = 75).

If there were 75 or fewer nonfreshman participants, all were selected. When there were more than 75 nonfreshman SSS participants, a random sample was selected using the same sampling methods that were used for the freshmen.

Service records were obtained on the sampled nonfreshmen, but the sampled nonfreshmen did not complete baseline surveys and transcripts were not requested for them.

Subsample of non-SSS Participants Within the 30 IHEs

Within the 30 IHEs subsampled, a comparison sample of non-SSS participants was drawn for the longitudinal study. Separate samples of non-SSS participants were drawn within each IHE. A primary goal for each separate sample of non-SSS participants was that characteristics of the sample be similar to the corresponding sample of SSS participants (e.g., similar proportions of students from low income families in both samples). Within each IHE, the target sample size for the sample of non-SSS participants was set to 2/3 of the sample size of SSS participants.

Matched sampling methods were used to obtain a sample of non-SSS participants that was similar to the sample of SSS participants. In particular, the methodology was usually by propensity analysis (Rosenbaum and Rubin, 1985, *The American Statistician*, vol. 39, no. 1), and, in a few instances, by stratified matched samples. The characteristics considered for use in the matched sample were numerous, including age, race, gender, SAT score, high school GPA, family income, handicap, and first generation, to name a few. For each IHE, those characteristics that were associated with whether the student received SSS or not were identified.

In those instances where only a few characteristics were identified, and hence the IHE school population could be stratified into a dozen or fewer classes, then the non-SSS sample was selected by the stratified matched sampling method. By stratification into classes, within a class there would be *n* SSS participants and *m* non-SSS participants. Within this class (2/3)*n* of the *m* non-SSS participants were randomly selected to be included in the non-SSS participant sample.

For example, the sample of non-SSS participants at University A was selected by stratified matched sampling. The characteristics associated with whether a student receives SSS or not were gender, receiving financial aid or not, and receiving a Pell grant or not. Thus, these three characteristics with two levels each generates $2^3=8$ classes. Within the class of males receiving both financial aid and a Pell grant, 8 students were receiving SSS and 184 students were not receiving SSS. Within this class 6* of the 184 students were not receiving SSS were randomly selected to be included in the non-SSS participant sample.

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*Six is two-thirds of 8 after rounding to the next greater integer; applying this rule within each class the sample size of non-SSS participants may be slightly larger than two-thirds the sample size of SSS participants.

Overall, there were 899 freshmen at University A and 51 SSS participants. Applying the stratified matched sampling method a sample of 37 ($\approx\frac{2}{3}n$) non-SSS participants was achieved.

Most of the IHE non-SSS samples were selected using propensity analysis. When several characteristics associated to whether a student receives SSS were identified, the stratified matched sampling method becomes infeasible. The several characteristics generate a stratification with an intractable number of classes (e.g., five characteristics with three levels each generates $3^5=243$ classes).

Briefly, the propensity analysis method works as follows. The several identified characteristics within an IHE are used to develop a logistic regression model that estimates the probability a student with a given set of characteristics receives SSS. This probability is called the propensity score. Not all of the identified characteristics would necessarily be included in the logistic regression model; if one was found to be a surrogate of another, or one could be explained by a combination of others, then that one characteristic was eliminated from the model.

A propensity score is then calculated for each student in the school. The matched sample of non-SSS participants is then selected such that the propensity scores of these students are similar to the propensity scores of the SSS participants. This is done by defining about 10 classes according to the propensity scores. Within a class there would be n SSS participants and m non-SSS participants. Then within this class $(2/3)n$ of the m non-SSS participants are randomly selected to be included in the non-SSS participant sample.

For example, at University B the characteristics in the logistic regression model were race/ethnicity, high school GPA, SAT score, college, hours enrolled, family income, and Pell grant. Given these seven characteristics it is unlikely that for each SSS participant there would be a non-SSS student with identical characteristics. Instead, the propensity score was calculated for all 2,576 freshmen at University B. Then 12 classes according to the propensity score were defined, and within each class a sample of non-SSS participants was selected to achieve a matched sample of non-SSS participants paired to the sample of SSS participants. The distribution of propensity scores for the 143 SSS participants at University B is similar to the distribution of propensity scores for the 97 ($\approx\frac{2}{3}n$) non-SSS participants at University B.

Comparison Sample of Institutions

A nonprobability comparison sample of 20 IHEs that did not have grants to operate SSS programs in 1990-91 was selected from the Integrated Postsecondary Education Data System (IPEDS) file. The purpose of drawing this sample of 20 IHEs was to compare the differences between certain institutional and student body characteristics for IHEs with SSS programs in place and IHEs with no programs. The following institutions were excluded from IPEDS before the sample was selected:

(1) IHEs located outside the coterminous 48 states;

(2) Privately controlled 2-year institutions;

(3) IHEs with a missing FICE code;

(4) Private schools with in-state tuition of $7,000 or more (none of the SSS sample schools had tuition over this amount);

(5) United States Service Schools; and

(6) All IHEs with SSS programs, as determined by the 1987-88 SSS project reports file.

The remaining IHEs from which the comparison sample of 20 was drawn were placed into 20 strata, and one comparison institution was chosen per stratum. The 20 strata were formed by crossing the level of the institution (2-year, 4-year), a race variable based on the majority race of the students in the institution (greater than 50 percent black, all other), the admissions requirements (low, medium, high), and the enrollment (less than 2,000, 2,000-7,999, 8,000-

19,999, 20,000 or higher). The admissions requirements of the institution were based on the institution's selectivity, defined as follows: highly selective schools accept students in the top 25 percent of their high school class, medium selective schools accept all students in the top half of their class and some students from the lower half of their class, and low selective schools accept all high school graduates.

The 30 IHEs that were subsampled for case studies were placed in these 20 strata by using the same stratification variables as described above. The comparison IHEs were sampled subjectively by finding the IPEDS IHE that was the closest match to the SSS institution subsampled for case study. The key matching variables in defining "closeness" were geographic location, the total undergraduate enrollment, the percentage of students receiving Pell Grants, and the average ACT/SAT scores.

For each comparison school selected, two alternates were selected in case of refusal by the originally selected school. The alternates were the next two closest matches on the key variables.

Subsample of Non-SSS Participants within the 20 Comparison IHEs

Samples of non-SSS participants for the 20 comparison IHEs were drawn for participation in the longitudinal study. To reiterate the previous section, the 20 comparison IHE's do not have SSS programs, and there was one comparison IHE selected in each of the 20 strata. Further, the 30 SSS IHEs stratify into the 20 strata such that there were one or two SSS IHEs in each of the 20 strata. Thus, for each SSS IHE there was a single corresponding non-SSS IHE with the same stratification.

For each SSS IHE, there was a separate sample of non-SSS participants from the corresponding non-SSS IHE. Again, a primary goal for each separate sample was that characteristics of the sample be similar to the corresponding sample of SSS participants. And again, the target sample size for the sample of non-SSS participants was set to 2/3 of the sample size of the corresponding SSS participants. The methodology is very analogous to the methodology of selecting subsamples of non-SSS participants within the 30 IHEs; matched samples were selected using propensity analysis or stratified matched samples.

One modification was necessary in many subsamples. Often the characteristics used in the logistic regression model (or stratified matched sample) within an SSS IHE were not collected at the corresponding non-SSS IHE. A second logistic regression model (or stratification) for the SSS IHE would be developed using only characteristics that were collected at the corresponding non-SSS IHE as well.

Otherwise, the subsample was chosen analogously. The propensity scores (or stratification) of all students at the non-SSS IHE and the SSS participants at the SSS IHE were calculated. A number of classes according to the propensity scores (or stratification) were defined. Within a class there would be *n* SSS participants at the SSS IHE and *m* non-SSS participants at the non-SSS IHE. Then within this class (2/3)*n* of the *m* non-SSS participants are randomly selected to be included in the non-SSS participant sample.

For example, the non-SSS IHE corresponding to University B was University C. The logistic regression model on University B had seven characteristics including college and family income. These two characteristics were not collected on the 2,751 freshmen at University C. A second logistic regression model was developed for University B with the following characteristics: race/ethnicity, high school GPA, SAT score, hours enrolled, and financial need. Using classes defined according to the propensity scores, corresponding to the sample of 143 SSS participants at University B a matched sample was selected of 97 (=⅔*n*) non-SSS participants at University C.

Weighting Process for the Project Survey Data

In order to produce unbiased national estimates for the institutional component of the National Study of Student Support Services, the sample data need to be adjusted for differential sampling rates and nonresponse at the institution level. This adjustment was accomplished by assigning weights to each of the IHEs.

In the first stage of the weighting process, weights were assigned to the IHEs to adjust for the fact that not all IHEs were sampled with the same probability. The probability of selection of institution i, π_i, can be expressed as:

$\pi_i = 1$ if the IHE was selected with certainty

$\pi_i = n_h (S_i/S_h)$ if the IHE was not selected with certainty

where

n_h = number of noncertainty institutions in sample from stratum h

S_i = the measure of size assigned to IHE i (the square root of the number of SSS participants for the larger programs and a constant for the smaller programs)

S_h = the sum of the measures of size of noncertainty IHEs in stratum h.

Note that in the strata where the IHEs were sampled with equal probability (the smaller programs), π_i is simply n_h/N_h where N_h is the number of noncertainty institutions in the frame from stratum h.

The base weight for IHE i is the inverse of the probability of selection of the IHE. It can be written as:

$IHE\_WT_i = 1/\pi_i$.

Since not all IHEs agreed to participate in the study, the base weights were adjusted for nonresponse. Six collapsed strata were used in this adjustment. The nonresponse classes were formed as follows:

Strata	Nonresponse Class	Description
1-4	1	4-year IHEs with small SSS programs
5-6	2	2-year, public IHEs with small SSS programs.
7	3	4-year, public IHEs with >50 percent white students and large SSS programs.
8-11	4	All other 4-year, public IHEs with large SSS programs.
12-15	5	2-year, public IHEs with large SSS programs.
16-18	6	IHEs with SSS programs serving only handicapped students, 2-year, private IHE, geographic outliers.

The nonresponse adjustment factor for collapsed stratum h was the sum of the base weights for the sampled institutions in that stratum divided by the sum of the institution base weights for the participating institutions in that stratum. The nonresponse adjustment factor for collapsed stratum h can be written as:

$$NRADJ_h = \frac{\sum_{\text{sampled IHEs}} IHE\text{-}WT_i}{\sum_{\text{participating IHEs}} IHE\text{-}WT_i}$$

The nonresponse adjusted weight for IHE i in collapsed stratum h is the product of the nonresponse adjustment and the institution base weight. It is:

$ADJWT_{hi} = IHE\_WT_i * NRADJ_h$.

This is the final weight that includes both the sampling and nonresponse adjustments.

Replicate Weights

Most statistical packages provide estimates of sampling errors assuming the sample is a simple random sample. The complex design of the SSS makes this assumption invalid. Therefore, it was decided to estimate the sampling errors of the estimates using a jackknife replication method. This method entailed dividing the sample into 36 variance strata of approximately equal size based on the original sample design for the survey, and computing estimates for each of these 36 replicates. The difference between the replicate estimates and the full sample estimate is used to estimate the sampling error of the statistic.

All of the noncertainty IHEs were placed in the same order within stratum as used in sampling and then assigned sequentially to the 36 variance strata in pairs. One of each of the two IHEs was assigned a 1 or 2, and this variable was called the pseudo-PSU. Psuedo-PSU refers to a block of institutions within a variance stratum. There was one certainty IHE, which was in all the variance strata since all of its replicate weights are one.

Each step of the weighting process was then replicated 36 times using the variance strata and pseudo-PSU assignments. The replicate weights were formed by dropping one unit from each variance stratum and doubling the weight for the other pseudo-PSU in that variance stratum. For example, in replicate one, the IHEs assigned to the first pseudo-PSU of the first variance stratum had their weights set equal to zero, while the IHEs assigned to the second pseudo-PSU in the first variance stratum had their weights doubled. The weights for all other IHEs were unaltered. Thirty-six replicate weights were created for each IHE. All of the weighting steps, including the nonresponse adjustment procedure, were then completed for each of the 36 replicate weights.

The replicate weights formed in this fashion can be used to estimate the variance or sampling error of an estimate. A replicate estimate is formed by applying the replicate weight to the characteristic or function of characteristics being estimated. Since there are 36 replicate weights, this results in 36 replicate estimates, $\hat{\theta}_k$. The variance of an estimate is estimated by the sum of the squares of the replicate estimates about the full sample estimate:

$$v(\hat{\theta}) = \sum_k (\hat{\theta}_k - \hat{\theta})^2.$$

The sampling error is just the square root of $v(\hat{\theta})$. The estimated variance and sampling errors for statistics can be computed using WESVAR and the JK2 option. WESVAR is a Westat-developed SAS procedure for computing sampling errors from complex samples. It should be noted that the JK2 OPTION statement is required to produce the appropriate estimate of the variance.

APPENDIX B

QUESTIONNAIRE/DATA COLLECTION FORMS

- Student Baseline Survey
- Service Record Form
- Freshman File Layout
- Followup Survey
- Transcript Coding Form

OMB NO. 1875-0062
EXP. 2/94

NATIONAL STUDY OF COLLEGE STUDENTS AND STUDENT SUPPORT SERVICES

STUDENT INITIAL SURVEY

Dear Student:

The information in this form is being collected as part of a national study of the role of student support services in higher education. The study is sponsored by the United States Department of Education and is being conducted by Westat, an independent survey research organization. The research is being conducted in response to a Congressional mandate "to examine the effectiveness of current (student support) programs and to identify program improvements" (P.L. 101-106). Your voluntary participation in this research is being requested in order to achieve a better understanding of how students are affected by their college experiences. Identifying information is being requested in order to make subsequent followup studies possible. Information provided on this survey will be used for statistical purposes only and will not be used to determine or affect eligibility for any type of student service or financial aid. All responses will be held in strictest confidence. The survey should take about 20 to 30 minutes to complete.

Thank you for your assistance.

Sincerely,

Allen Ginsburg
Director, Planning and Evaluation Service
United States Department of Education

STUDENT BACKGROUND

PLEASE INDICATE YOUR RESPONSE BY FILLING IN THE BLANK OR CIRCLING THE APPROPRIATE CODE FOR EACH QUESTION.

1. What is your Social Security number?

|_|_|_| |_|_| |_|_|_|_|

2. What is your birthdate?

|_|_| |_|_| |1|9|_|_|
MO DAY YEAR

3. What is your sex?

Male	1
Female	2

4. What is your marital status?

Never married	1
Married	2
Separated	3
Divorced or Widowed	4

5. Do you have any dependent children?

Yes	1
No	2

If yes, enter how many ________

6. What is your race/ethnicity?

American Indian	1
Alaskan Native	2
Black (not Hispanic)	3
Mexican American	4
Hispanic (not Mexican American)	5
Asian or Pacific Islander	6
White (not Hispanic)	7

7. In what year did you graduate from high school or obtain a GED? (ANSWER ONLY ONE)

______ Year graduated from high school

______ Year obtained GED

______ Year left high school but never obtained high school diploma

8. How many miles is this college from your permanent home?

Under 50	1
50 - 100	2
Over 100	3

9. What were your scores on the SAT and/or ACT? (CHECK BOX IF DID NOT TAKE AND GO TO Q10. ☐)

SAT Verbal .... ___ ___ ___
SAT Math .... ___ ___ ___
ACT Composite .... ___ ___

10. What was your average grade in high school?

A or A+	1
A-	2
B+	3
B	4
B-	5
C+	6
C	7
C-	8
D	9

11. During high school (grades 9-12) how many years did you study each of the following subjects? (ANSWER FOR EACH ITEM)

	(ENTER "0" IF NONE)	
a. Mathematics	________	years
b. Foreign Language	________	years
c. Physical Science	________	years
d. Biological Science	________	years
e. Computer Science	________	years

12. Since leaving high school have you ever taken courses at any institution other than the one you attended in the Fall of 1991? (CIRCLE ALL THAT APPLY)

a. No	1
b. Yes, at a junior or community college	2
c. Yes, at a four-year college or university	3
d. Yes, at some other postsecondary school (for example, technical, vocational, business)	4

13. Prior to the Fall 1991 term have you ever taken courses for credit at the institution you were attending last fall?

Yes	1
No	2

14. How many college credits did you earn prior to Fall 1991?

__________ (ENTER NUMBER)

(CHECK UNIT FOR NUMBER ENTERED)

- ☐ Semester/trimester credits
- ☐ Quarter credits
- ☐ Clock hours
- ☐ Other (Specify)

____

____

15. Other than high school advanced placement credits, in what year did you receive your first college credit?

|1|9|__|__| (ENTER NA IF YOU HAVE NOT YET RECEIVED COLLEGE CREDIT)

16. In Column A, enter the highest academic degree that you intend to obtain from the college you are now attending. In Column B, enter the highest academic degree that you ever plan to obtain from any college. (CIRCLE ONE IN EACH COLUMN)

	A. Highest Planned at this College	B. Highest Planned Ever
a. None	1	1
b. Vocational certificate	2	2
c. Associate's degree	3	3
d. Bachelor's degree or equivalent	4	4
e. 1 or 2 years of graduate study (master's degree)	5	5
f. Doctoral or professional degree such as M.D., Ph.D., etc.	6	6

17. Where do you live during the school year? (CIRCLE ONLY ONE)

Dormitory or other college housing	1
Fraternity or sorority house	2
Private apartment or room within walking distance of the college	3
House, apartment, etc., away from the campus	4
With my parents or relatives	5

18. Most of the time when you were growing up, who lived in the same household with you? (CIRCLE ONE IN EACH ROW)

	YES	NO
a. Father or other male guardian (stepfather, foster father)	1	2
b. Mother or other female guardian (stepmother, foster mother)	1	2
c. Brothers or sisters	1	2
d. Grandparents	1	2
e. Other relatives (children or adults)	1	2
f. Other nonrelatives (children or adults)	1	2

19. Are you considered a full-time or part-time student by the institution you are attending?

Full time	1
Part time	2

20. During the time school is in session, about how many hours a week do you usually spend on activities that are related to your school work? This includes time spent in class and time spent studying.

______ Hours per week

21. How many hours per day (on average) do you study outside of class?

Less than 1	1
1	2
2	3
3	4
4 or more	5

22. During the time school is in session, do you work for pay on a job?

Yes, on campus college work-study	1	(GO TO Q22A)
Yes, on campus but not college work-study	2	(GO TO Q22A)
Yes, off campus	3	(GO TO Q22A)
No, I do not work while school is in session	4	(GO TO Q23)

22A. How many hours per week do you work for pay when school is in session?

__________ Hours per week

23. Which of the categories below comes closest to describing your father's (stepfather or male guardian's), and mother's (stepmother or female guardian's) most recent job? (CIRCLE ONE IN EACH COLUMN; ANSWER FOR MOST RECENT JOB, EVEN IF HE OR SHE IS NOT WORKING AT PRESENT)

	A FATHER	B MOTHER
CLERICAL such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent	1	1
CRAFTSMAN such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter	2	2
FARMER, FARM MANAGER	3	3
HOMEMAKER	4	4
LABORER such as construction worker, car washer, sanitary worker, farm laborer	5	5
MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official	6	6
MILITARY such as career officer, enlisted man or woman in the Armed Forces	7	7
OPERATIVE such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver	8	8
PROFESSIONAL such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, politician, but not including school teacher	9	9
PROFESSIONAL such as clergyman, dentist, physician, lawyer, scientist, college teacher	10	10
PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner	11	11
PROTECTIVE SERVICE such as detective, police officer or guard, sheriff, fire fighter	12	12
SALES such as salesperson, advertising or insurance agent, real estate broker	13	13
SCHOOL TEACHER such as elementary or secondary	14	14
SERVICE such as barber, beautician, practical nurse, private household worker, janitor, waiter	15	15
TECHNICAL such as draftsman, medical or dental technician, computer programmer	16	16
Never worked	17	17
Don't know	18	18

24. What was the highest level of education your father (stepfather or male guardian) and mother (stepmother or female guardian) completed? (CIRCLE ONE IN EACH COLUMN)

		A FATHER	B MOTHER
Less than high school graduate		1	1
High school graduate or equivalent (include vocational, high school, or GED)		2	2
Vocational, trade, or business school after high school	Less than two years	3	3
	Two years or more	4	4
College program	Less than two years of college	5	5
	Two or more years of college (including two-year degree)	6	6
	Finished college (four- or five-year degree)	7	7
	Master's degree or equivalent	8	8
	Ph.D., M.D., or other advanced professional degree	9	9
Don't know		10	10

25. How far in school do you think your parents/guardians want you to go?

High school graduation	1
Vocational certificate	2
Associate's degree	3
Bachelor's degree or equivalent	4
1 or 2 years of graduate study (master's degree)	5
Doctoral degree such as M.D., Ph.D., etc.	6

26. Is any other language besides English spoken in your home?

Yes	1	
No	2	(SKIP TO Q28A)

27. Using a scale of 1 to 4 with 1 = not very well, 2 = fairly well, 3 = well, and 4 = very well, how well do you:

a._____ understand English?
b._____ speak English?
c._____ write English?
d._____ read English?

28A. Did you apply for and/or receive financial aid for the 1991-92 school year? (CIRCLE ONE ONLY)

Yes, applied did not receive	1	(GO TO Q28B)
Yes, applied and received	2	(GO TO Q28B)
No, did not apply and did not receive	3	(GO TO Q28C)

28B. If you applied for or received financial aid, please indicate who helped you assemble your financial aid package.

	YES	NO
a. High school counselor	1	2
b. College counselor	1	2
c. Parent	1	2
d. Self	1	2
e. Bank	1	2
f. Other (Specify)		
____________________	1	
____________________	1	

28C. In Column A, circle all sources of funds for your educational expenses (room, board, tuition and fees) for this year. In Column B, circle the 3 major sources of your educational expenses.

	A. CIRCLE ALL SOURCES	B. CIRCLE UP TO THREE MAJOR SOURCES
a. Parents, other relatives, or friends	1	1
b. Spouse	2	2
c. Personal savings	3	3
d. Job during school year	4	4
e. Summer job	5	5
f. Grants or scholarships from institutions	6	6
g. Grants or scholarships from any other source	7	7
h. Government loans	8	8
i. Loans from any other source	9	9

29. In 1991-92 have you or will you be:

	YES	NO
a. Living with your parents (for more than five consecutive weeks)	1	2
b. Listed as a dependent on your parents' Federal Income Tax return	1	2
c. Receiving assistance worth $600 or more from your parents	1	2

30. Are you participating in a work-study program at your school during the current school term? (CIRCLE ONLY ONE)

No	1
Yes	2

31. Do you have any concern about your ability to finance your college education? (CIRCLE ONE)

None (I am confident that I will have sufficient funds)	1
Some concern (but I will probably have enough funds)	2
Major concern (not sure I will have enough funds to complete college)	3

32. Do you have any of the following conditions?

	YES	NO
a. Specific learning disability	1	2
b. Visual handicap (not corrected by glasses)	1	2
c. Hard of hearing	1	2
d. Deafness	1	2
e. Speech disability	1	2
f. Orthopedic (skeletal) or mobility handicap	1	2
g. Specific psychological disorder	1	2
h. Other physical disability or handicap (SPECIFY)	1	2

____

____

STUDENT OPINIONS AND COLLEGE EXPERIENCES

33. In deciding to go to college, how important to you was each of the following reasons? (CIRCLE ONE IN EACH ROW)

	VERY IMPORTANT	SOMEWHAT IMPORTANT	NOT IMPORTANT
a. To be able to get a better job	1	2	3
b. To gain a general education and appreciation of ideas	1	2	3
c. To improve my reading and study skills	1	2	3
d. There was nothing better to do	1	2	3
e. To make me a more cultured person	1	2	3
f. To be able to make more money	1	2	3
g. To learn more about things that interest me	1	2	3
h. To prepare myself for graduate or professional school	1	2	3
i. My parents wanted me to go	1	2	3
j. I could not find a job	1	2	3
k. To get away from home	1	2	3
l. High school teacher or counselor encouraged me	1	2	3

34. What is the most important reason that you are attending THIS COLLEGE at this time? (CIRCLE ONLY ONE)

a. To prepare for transfer to a four-year college or university	1
b. To gain skills necessary to enter a career or occupation	2
c. To gain skills necessary to retrain, remain current, or advance in your current occupation	3
d. To satisfy personal interest (intellectual, cultural, social)	4
e. To improve English, reading, or math skills	5

35. About 50 percent of university students typically leave before receiving a degree. If this should happen to you, what would be the most likely cause? (CIRCLE ONLY ONE)

a. I am absolutely certain that I will obtain a degree	1
b. To accept a good job	2
c. To enter military service	3
d. It would cost more than my family could afford	4
e. Marriage	5
f. Disinterest in study	6
g. Lack of academic ability	7
h. Insufficient reading or study skills	8
i. Other (SPECIFY)	9

____

36A. During high school or just prior to entering college did you participate in any of the following? (CIRCLE ONE IN EACH ROW)

	YES	NO
a. Summer residential program to prepare for college	1	2
b. Summer nonresidential program to prepare for college	1	2
c. Tutoring given to you in math	1	2
d. Tutoring given to you in English, writing, or reading	1	2
e. Tutoring given to you in other subjects	1	2
f. Visits to college campus for orientation	1	2
g. College mentoring programs for high school students	1	2
h. Cultural or recreational enrichment programs	1	2
i. Volunteer work in the community	1	2
j. College selection or admissions counseling	1	2

36B. Have you ever participated in any of the following federal programs?

	YES	NO
a. Upward Bound	1	2
b. Veterans Upward Bound	1	2
c. Talent Search	1	2
d. Equal Opportunity Centers (EOC)	1	2
e. Other (SPECIFY)______________________________	1	2
f. Other (SPECIFY)______________________________	1	2

37A. In Column A, circle each service that you have used since beginning college.

37B. In Column B, circle each service that you expect to use in this or the next term.

37C. In Column C, enter how many times you have used or expect to use the service.

[CIRCLE ALL THAT APPLY]

Service	A. Have used this service	B. Plan to use this term or next term	C. Expected number of times have/plan to use per term (Count each session/service use as 1 use)
a. Services for physically disabled	1	1	________
b. Services for students of limited English-speaking ability	2	2	________
c. Student orientation	3	3	________
d. Individual counseling	4	4	________
e. Group counseling	5	5	________
f. College re-entrance counseling	6	6	________
g. Tutoring	7	7	________
h. Classroom instruction in basic skills	8	8	________
i. Classroom instruction in developmental English	9	9	________
j. Classroom instruction in developmental math	10	10	________
k. Cultural enrichment activities	11	11	________
l. Referrals to health, employment, housing, and legal agencies and resources	12	12	________

38. How often did you do each of the following during the 1991-92 year? [CIRCLE ONE IN EACH ROW]

	NEVER	ONCE	SOME-TIMES	OFTEN
a. Talk with faculty about academic matters in their offices	1	2	3	4
b. Meet with your advisor concerning your academic plans	1	2	3	4
c. Have informal or social contacts with your advisor or other faculty members	1	2	3	4
d. Participate in study groups with other students outside of the classroom	1	2	3	4
e. Go places such as concerts, movies, restaurants, sporting events, etc., with friends from the school	1	2	3	4
f. Participate in one or more student assistance centers or programs (e.g., counseling programs, the learning skills center, minority student services, health services)	1	2	3	4
g. Participate in school clubs (e.g., student government, religious clubs, service activities)	1	2	3	4
h. Attend career-related lectures, conventions, or field trips with friends	1	2	3	4
i. Participate in and practice with others for intramural or intercollegiate music, drama, choir, etc.	1	2	3	4
j. Participate in and practice with others for intramural or intercollegiate sports	1	2	3	4

39. How well do you like college? (CIRCLE ONLY ONE)

I am enthusiastic about it	1
I like it	2
I am more or less neutral about it	3
I don't like it	4

40. If you could start over again, would you go to the same college you are now attending? (CIRCLE ONLY ONE)

Yes, definitely	1
Probably yes	2
Probably no	3
No, definitely	4

41. Whatever your plans, do you think you have the ability to complete college? (CIRCLE ONLY ONE)

Yes, definitely	1
Yes, probably	2
Not sure	3
I doubt it	4
Definitely not	5

42. What were your grades last term and what do you think they will be when you graduate? 4 (CIRCLE ONE CODE IN EACH COLUMN)

	THIS TERM	WHEN YOU GRADUATE
a. Mostly A	1	1
b. About half A and half B	2	2
c. Mostly B	3	3
d. About half B and half C	4	4
e. Mostly C	5	5
f. About half C and half D	6	6
g. Mostly D	7	7
h. Mostly below D	8	8
i. Ungraded, a pass/fail program only	9	9

43A. Which of the following comes closest to describing your major field of study (or your expected major)? (CIRCLE ONLY ONE)

a. Agriculture	1
b. Arts (art, music, theater, etc.)	2
c. Biological Sciences (biology, biochemistry, botany, zoology, etc.)	3
d. Business	4
e. Computer Science	5
f. Education (including physical education and recreation)	6
g. Engineering	7
h. Health-related fields (nursing, physical therapy, health technology, etc.)	8
i. Humanities (literature, languages, history, philosophy, religion, etc.)	9
j. Physical Sciences (physics, chemistry, mathematics, astronomy, earth science, etc.)	10
k. Social Sciences (economics, political science, psychology, sociology, etc.)	11
l. Other (SPECIFY) ____________________	12
m. Undecided	13

43B. Do you have definite career plans for after college?

Yes, definite	1
Yes, probable	2
No, not really sure of plans	3
No, not at all sure of plans	4

44. What kind of work do you think you will be doing in 5 to 10 years? (MARK THE ONE THAT COMES CLOSEST TO WHAT YOU EXPECT TO BE DOING)

(CIRCLE ONLY ONE)

CLERICAL such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent	1
CRAFTSMAN such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter	2
FARMER, FARM MANAGER	3
HOMEMAKER	4
LABORER such as construction worker, car washer, sanitary worker, farm laborer	5
MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official	6
MILITARY such as career officer, enlisted man or woman in the Armed Forces	7
OPERATIVE such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver	8
PROFESSIONAL such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher	9
PROFESSIONAL such as clergyman, dentist, physician, lawyer, scientist, college teacher	10
PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner	11
PROTECTIVE SERVICE such as detective, police officer or guard, sheriff, fire fighter	12
SALES such as salesperson, advertising or insurance agent, real estate broker	13
SCHOOL TEACHER such as elementary or secondary	14
SERVICE such as barber, beautician, practical nurse, private household worker, janitor, waiter	15
TECHNICAL such as draftsman, medical or dental technician, computer programmer	16
NOT WORKING	17

45. **Which of the following ranges includes the current household income of the family with whom you resided when you were growing up? (CIRCLE ONLY ONE)**

$5,000 or less	1
$5,001 to $10,000	2
$10,001 to $15,000	3
$15,001 to $20,000	4
$20,001 to $25,000	5
$25,001 to $30,000	6
$30,001 to $40,000	7
$40,001 to $50,000	8
$50,001 to $75,000	9
Over $75,000	10

46. **Rate yourself on each of the following traits as compared with the average person of your age. We want the most accurate estimate of how you see yourself. (CIRCLE ONLY ONE IN EACH ROW)**

	HIGHEST 10%	**ABOVE AVERAGE**	**AVERAGE**	**BELOW AVERAGE**	**LOWEST 10%**
a. Academic ability	1	2	3	4	5
b. Artistic ability	1	2	3	4	5
c. Drive to achieve	1	2	3	4	5
d. Emotional health	1	2	3	4	5
e. Leadership ability	1	2	3	4	5
f. Mathematical ability	1	2	3	4	5
g. Physical health	1	2	3	4	5
h. Popularity	1	2	3	4	5
i. Self-confidence (intellectual)	1	2	3	4	5
j. Self-confidence (social)	1	2	3	4	5
k. Writing ability	1	2	3	4	5

47. Please indicate the extent to which you agree or disagree with each of the following items. Respond to the statements below with your feelings at present or with your expectations of how things will be. (CIRCLE ONE IN EACH ROW)

	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
a. The college should use its influence to improve social conditions in the state	1	2	3	4	5
b. It should not be very hard to get a "B" (3.0) average at this college	1	2	3	4	5
c. I get easily discouraged when I try to do something and it doesn't work	1	2	3	4	5
d. I am sometimes looked up to by others	1	2	3	4	5
e. If I run into problems concerning school, I have someone who would listen to me and help me	1	2	3	4	5
f. There is no use in doing things for people, you only find that you get it in the neck in the long run	1	2	3	4	5
g. In groups where I am comfortable, I am often looked to as a leader	1	2	3	4	5
h. I expect to have a harder time than most students at this college	1	2	3	4	5
i. Once I start something, I finish it	1	2	3	4	5
j. When I believe strongly in something, I act on it	1	2	3	4	5
k. I am as skilled academically as the average applicant to this college	1	2	3	4	5
l. I expect I will encounter racism at this college	1	2	3	4	5
m. People can pretty easily change me even though I thought my mind was already made up on a subject.	1	2	3	4	5
n. My friends and relatives don't feel I should go to college	1	2	3	4	5
o. My family has always wanted me to go to college	1	2	3	4	5
p. If course tutoring is made available on campus at no cost, I would attend regularly	1	2	3	4	5
q. I want a chance to prove myself academically	1	2	3	4	5
r. My high school grades don't really reflect what I can do	1	2	3	4	5
s. I usually feel comfortable on this campus	1	2	3	4	5

t. Please list offices held and/or groups belonged to in high school or in your community

______________________ ______________________

______________________ ______________________

48. What is your best guess as to the chances that you will: (CIRCLE ONE IN EACH ROW)

	VERY GOOD CHANCE	SOME CHANCE	VERY LITTLE CHANCE	NO CHANCE
a. Change major field?	1	2	3	4
b. Fail one or more courses?	1	2	3	4
c. Make at least a "B" average?	1	2	3	4
d. Need extra time to complete your degree requirements?	1	2	3	4
e. Have to work at an outside job during college?	1	2	3	4
f. Get a bachelor's degree (B.A., B.S., etc.)?	1	2	3	4
g. Drop out of this college temporarily (exclude transferring)?	1	2	3	4
h. Drop out permanently (exclude transferring)?	1	2	3	4
i. Transfer to another college before graduating?	1	2	3	4
j. Find a job after college in the field for which you are trained?	1	2	3	4
k. Get married while in college? (skip if married)	1	2	3	4
l. Get married within a year after college? (skip if married)	1	2	3	4

49. Please list 3 goals that you have for yourself right now.

1. ______________________________

2. ______________________________

3. ______________________________

50. Please list 3 things that you are proud of having done.

1. ______________________________

2. ______________________________

3. ______________________________

51. As part of this study, we are requesting your permission to obtain a copy of your college transcripts. This will allow us to better understand how actual courses taken relate to student experience in college. This information will be held in strict confidence and used only for statistical purposes.

May we obtain your transcripts from your college for use for statistical purposes?

Yes	1
No	2

INFORMATION FOR FUTURE FOLLOWUP

ID: |_|-|_|_|_|_|-|_|_|-|_|

PRINT your name, address and telephone number (where you can be reached during the coming year).

Your Name

Spouse's Full Name

Your Maiden Name

Street Address

City

State Zip Code

( )
TELEPHONE NUMBER

IN WHOSE NAME IS THE TELEPHONE NUMBER LISTED?
(CIRCLE ONE)

No phone	1
My name	2
Spouse's name	3
Other (PLEASE SPECIFY)________	4

PRINT name, address and telephone number of your parents (or one parent).

Parent's Name

Street Address

City

State Zip Code

( )
TELEPHONE NUMBER

IN WHOSE NAME IS THE TELEPHONE NUMBER LISTED?
(CIRCLE ONE)

No phone	1
Parent's name	2
Other (PLEASE SPECIFY)________	4

PRINT the names and address of two other people who will always know where to get in touch with you. (List no more than one person who now lives with you.) Remember to record the relationship of these persons to you (for example, friend, sister, cousin, etc.).

Name

Street Address

City

State Zip Code

Relationship to you

( )
TELEPHONE NUMBER

IN WHOSE NAME IS THE TELEPHONE NUMBER LISTED?
(CIRCLE ONE)

No phone	1
Person listed here	2
Other (PLEASE SPECIFY)________	4

Name

Street Address

City

State Zip Code

Relationship to you

( )
TELEPHONE NUMBER

IN WHOSE NAME IS THE TELEPHONE NUMBER LISTED?
(CIRCLE ONE)

No phone	1
Person listed here	2
Other (PLEASE SPECIFY)________	4

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Service Record Form

National Study of Student Support Services
Student Participation Record Form

for August-September, 1991

Student Name: ______________________________

Student Study ID:

Social Security Number: ______________________

Check here if no service during month |___|

Enter Type of Service (Code from list)	Enter Date of Service			Enter Duration of Service in Minutes	Enter Initials of Service Provider(s)	Enter Number of Students in Session (Enter 1 if student is only one)
	Month		Day			
		/				
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Service list coding guide

1. Instructional Courses
   - a. Reading
   - b. Writing
   - c. Study Skills
   - d. Developmental Mathematics
   - e. Developmental English
   - f. English Proficiency
   - g. Other (SPECIFY) ____
   - h. Other (SPECIFY) ____

2. Tutoring (Professional)
   - a. General

   Specific Course
   - b. ____
   - c. ____
   - d. ____
   - e. ____
   - f. ____
   - g. ____
   - h. ____
   - i. ____

3. Tutoring (Peer)
   - a. General

   Specific Course
   - b. ____
   - c. ____
   - d. ____
   - e. ____
   - f. ____
   - g. ____
   - h. ____
   - i. ____

4. Counseling (Professional)
   - a. Academic Counseling/Advising
   - b. Personal Counseling
   - c. Financial Aid Counseling
   - d. Career Counseling
   - e. Graduate School Counseling
   - f. Other (SPECIFY) ____
   - g. Other (SPECIFY) ____

5. Counseling (Peer)
   - a. Academic Counseling/Advising
   - b. Personal Counseling
   - c. Financial Aid Counseling
   - d. Career Counseling
   - e. Graduate School Counseling
   - f. Other (SPECIFY) ____
   - g. Other (SPECIFY) ____

6. Labs
   - a. English
   - b. Writing
   - c. Reading
   - d. Math
   - e. Science
   - f. Test Taking
   - g. Other (SPECIFY) ____
   - h. Other (SPECIFY) ____

7. Workshops
   - a. Orientation to College
   - b. Study Skills
   - c. Test Taking
   - d. Career Guidance
   - e. Other (SPECIFY) ____
   - f. Other (SPECIFY) ____

8. Cultural Events
   - a. Museums
   - b. Concerts
   - c. Lectures
   - d. Other (SPECIFY) ____
   - e. Other (SPECIFY) ____

9. Services to Handicapped
   - a. Reader
   - b. Note Taker
   - c. Oral Testing
   - d. Taped Texts
   - e. Dictated Exams
   - f. Proctored Exams
   - g. Counseling (other than above)
   - h. Special Schedule
   - i. Lab Assistance
   - j. Taped Lectures
   - k. Computorized Instructions
   - l. Extended Time Testing
   - m. Other (SPECIFY) ____
   - n. Other (SPECIFY) ____

FILE LAYOUT AND DOCUMENTATION

National Study of Student Support Services

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation*
	A.	Locating and Identifying Information		
AA	1-2	2	Field check AA	
AB	3-17	15	Student's Last Name	Field specification ____________
AC	18-29	12	Student's First Name	Field specification ____________
AD	30-41	12	Student's Middle Name or Initial	Field specification ____________
AE	42-56	15	Student's Maiden Name	Field specification ____________
AF	57-71	15	Social Security Number	Field specification ____________
AG	72-86	15	Student Institution ID	Field specification ____________
AH	87-126	40	Student's Local Address (Street/Box Number/Apt. No.)	Field specification ____________
AI	127-146	20	Student's Local City Address	Field specification ____________
AJ	147-148	2	Student's Local State Address (abbreviation)	Field specification ____________
AK	149-157	9	Student's Local ZIP Code	Field specification ____________
AL	158-172	15	Student's Local Telephone With Area Code	Field specification ____________
AM	173-212	40	Student's Permanent Address (Street/Box Number/Apt. No.)	Field specification ____________
AN	213-232	20	Student's Permanent City Address	Field specification ____________
AO	233-234	2	Student's Permanent State Address	Field specification ____________
AP	235-243	9	Student's Permanent ZIP code	Field specification ____________
AQ	244-258	15	Student's Permanent Telephone With Area Code	Field specification ____________
AR	259-273	15	Parent's Name (Last Name)	Field specification ____________
AS	274-285	12	Parent's Name (First Name)	Field specification ____________
AT	286-297	12	Parent's Middle Name or Initial	Field specification ____________
AU	298-337	40	Parent's Permanent Address (Street/Box Number/Apt. No.)	Field specification ____________
AV	338-357	20	Parent's Permanent City Address	Field specification ____________
AW	358-359	2	Parent's Permanent State Address	Field specification ____________
AX	360-368	9	Parent's Permanent ZIP Code	Field specification ____________
AY	369-383	15	Parent's Telephone With Area Code	Field specification ____________

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*Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
B.	**Student Background Characteristics**				
BA	384-385	2	Field Check		
			BA		
					Gender
BB	386	1	Gender	field specification	________
			1 = Male	codes	________
			2 = Female		________
			9 = Not available	NA codes	________
					Month of Birth
BC	387-388	2	Month of Birth	field specification	________
			01-12	codes	________
			99 = not available	NA codes	________
					Day of Birth
BD	389-390	2	Day of Birth	field specification	________
			01-31	codes	________
			99 = not available	NA codes	________
					Year of Birth
BE	391-392	2	Year of Birth	field specification	________
			12-70	codes	________
			99 = not available	NA codes .	________
					Marital Status
BF	393	1	Current Marital Status	field specification	________
			1 = married	codes	________
			2 = not married		________
			9 = not available	NA codes	________
					Num Dep Children
BE	394-395	2	Number of Dependent Children	field specification	________
			00-15	codes	________
			99 = not available	NA codes	________

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*Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
					Race/Ethnicity
BG	396	1	Race/Ethnicity	field specification	
			1 = Amercian Indian/Alaskan Native	codes	
			2 = Asian		
			3 = Black/Afro-Amer, nonhispanic		
			4 = Hispanic		
			5 = White, nonhispanic		
			9 = not available	NA codes	
					U.S. Citizenship
BH	397	1	U.S. Citizenship	field specification	
			1 = yes	codes	
			2 = no		
			9 = not available	NA codes	
					Phys Disab
BI	398	1	Any Physical Disability	field specification	
			1 = yes	codes	
			2 = no		
			9 = not available	NA codes	
					Learning Disab.
BJ	399	1	Any Learning Disability	field specification	
			1 = yes	codes	
			2 = no		
			9 = not available	NA codes	
					High School Diploma
BK	400	1	High School Diploma	field specification	
			1 = yes	codes	
			2 = no		
			9 = not available	NA codes	

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* Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation*	
				GED /Equiv	
BL	401	1	GED or Equivalent	field specification	
			1 = yes	codes	
			2 = no		
			9 = not available	NA codes	
				High School Grade Point Average	
BM	402-405	4	High School Grade Point Average		
			(GPA 4 point scale)	field specification	
			1.00-4.00	codes	
			9999 = not available	NA codes	
				High School Average letter grade	
BN	406-407	2	High School Average letter grade	field specification	
			01 = A	codes	
			02 = B		
			03 = C		
			04 = D		
			05 = E		
			06 = F		
			99 = not available	NA codes	
				High School Class Rank	
BO	408-411	4	High School Class Rank	field specification	
			0001-9998	codes	
			9999 = not available	NA codes	
				No. in HS Class	
BP	412-415	4	Number in High School Class	field specification	
			0001-9998	codes	
			9999 = not available	NA codes	
				State of High School	
BQ	416-417	2	State of High School	field specification	
			2 digit FIPS state abbrevations	codes	
			99 = not available	NA codes	

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* Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation[*]	
				Transfer Status	
BR	418	1	Transfer Status (yes/no)	field specification	______
			1 = yes	codes	______
			2 = no		______
			9 = not available	NA codes	______
				No. Transfer Credits	
BS	419-420	2	Number of Transfer Credits	field specification	______
			01-40	codes	______
			99 = not available	NA codes	______
				Transfer Grade Point	
BT	421-424	4	Transfer Grade Point	field specification	______
			1.00-4.00 (decimal)	codes	______
			9999 = not available	NA codes	______
				First Generation College (mother)	
BU	425	1	First Generation College (mother)	field specification	______
			1 = yes	codes	______
			2 = no		______
			9 = not available	NA codes	______
				First Generation College (father)	
BV	426	1	First Generation College (father)	field specification	______
			1 = yes	codes	______
			2 = no		______
			9 = not available	NA codes	______

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[*] Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
C.	**Student Test information**				
CA	427-428	2	Field Check CA		
CB	429-431	3	SAT Score: Verbal 200-800 999 = not available	field specification codes NA codes	SAT Score: Verbal ________________ ________________ ________________
CC	432-434	3	SAT Score: Math 200-800 999 = not available	field specification codes NA codes	SAT Score: Math ________________ ________________ ________________
CD	435-436	2	ACT Score: English 01-35 99 = not available	field specification codes NA codes	ACT Score: English ________________ ________________ ________________
CE	437-438	2	ACT Score: Math 01-35 99 = not available	field specification codes NA codes	ACT Score: Math ________________ ________________ ________________
CF	439-440	2	ACT Score: Composite 01-35 99 = not available	field specification codes NA codes	ACT Score: Composite ________________ ________________ ________________
CG	441-470	30	Institution Placement Test 1 Math (Specify name) ________________	field specification	________________
CH	471-475	5	Score on Test 1 Math Specify range____________ 99999 = not available/applicable	field specification codes NA codes	Score on Test 1 Math ________________ ________________ ________________

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* Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
					Placement Test 2 English
CI	476-505	30	Institution Placement Test 2 English		
			(Specify name)	field specification	____________________
			____________________		
					Score on Test 2 English
CJ	506-510	5	Score on Test 2 English	field specification	____________________
			Specify range________________	codes	____________________
			99999 = not available/applicable	NA codes	____________________
					Placement Test 3 Other
CK	511-540	30	Institution Placement Test 3 Other		
			(Specify name)	field specification	____________________
			____________________		
					Score on Test 3 Other
CL	541-545	5	Score on Test 3 Other	field specification	____________________
			Specify range________________	codes	____________________
			99999 = not available/applicable	NA codes	____________________

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[*] Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
D.	**Special Service Participation**				
DA	546-547	2	Field Check DA		
DB	548	1	Participant in any student support service program	field specification	Participant in any student support service program
			1 = yes	codes	
			2 = no	code	
			9 = not available	NA code	
DC	549	1	Participant in any federal funded service program	field specification	Participant in any federally funded student support service program
			1 = yes	codes	
			2 = no	code	
			9 = not available	NA code	
DD	550	1	Participant in any state funded service program	field specification	Participant in any state funded student support service program
			1 = yes	codes	
			2 = no	code	
			9 = not available	NA code	
DE	551	1	Participant in any special service for handicapped	field specification	Participant in any special services for handicapped program
			1 = yes	codes	
			2 = no	code	
			9 = not available	NA code	

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*Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation*
E.	**Student Enrollment Information**			
EA	552-553	2	Field Check	
			EA	
				Month of First Enrollment
EB	554-555	2	Month of First Enrollment at Your Institution	field specification ________________
			01-12	codes ________________
			99 = not available	NA codes ________________
				Year of First Enrollment
EC	556-557	2	Year of First Enrollment at Your Institution	field specification ________________
			91	codes ________________
			99 = not available	NA codes ________________
				College
ED	558-582	25	College	field specification ________________
			Document codes used on separate page	codes ________________
				Major
EE	583-607	25	Major	field specification ________________
			Document codes used on separate page	codes ________________
				Freshman Division Status
EF	608	1	Freshman Division Status	field specification ________________
			1 = yes	codes ________________
			2 = no	________________
			3 = inapplicable (do not have)	________________
			9 = not available	NA codes ________________
				Total Credits Earned at Institution
EG	609-610	2	Total Credits Earned at Institution Prior to Fall 1991	field specification ________________
			00-30	codes ________________
			99 = not available	NA codes ________________
				Number of Courses Taken Fall 1991
EH	611-612	2	Number of Courses Taken Fall 1991	field specification ________________
			01-25	codes ________________
			99 = not available	NA codes ________________

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[*] Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation*	
				Full-time/Part-time Student Fall 1991	
EI	613	1	Full-time/Part-time Student Fall 1991	field specification	________
			1 = full time	codes	________
			2 = part time		________
			9 = not available	NA codes	________
				Current Hours Attempted Fall 1991	
EJ	614-615	2	Current Hours Attempted Fall 1991	field specification	________
			01-25	codes	________
			99 = not available	NA codes	________
				Veteran Status	
EK	616	1	Veteran Status	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				Conditional Admit Status	
EL	617	1	Conditional Admit Status	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				State Resident Status	
EM	618	1	State Resident Status	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				Dorm Occupancy	
EN	619	1	Dorm Occupancy	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________

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Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation*	
F.	**Student Financial Aid Information**				
FA	620-621	2	Field check		
			FA		
				Financial Aid Application 1991-92	
FB	622	1	Financial Aid Application 1991-92	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				Financial Need Amount 1991-92	
FC	623-627	5	Financial Need Amount 1991-92	field specification	________
			00000-25000	codes	________
			99999 = not available	NA codes	________
				Pell Grant Award Fall, 1991	
FD	628	1	Pell Grant Award Fall, 1991	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				Amount of Pell Grant Award for Fall, 1991	
FE	629-632	4	Amount of Pell Grant Award for Fall, 1991	field specification	________
			0001-5000	codes	________
			9999 = not available	NA codes	________
				Work Study	
FF	633	1	Work Study Fall, 1991	field specifiction	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				Total Financial Aid	
FG	634-638	5	Total Financial Aid Amount 1991-92	field specification	________
			00001-25000	codes	________
			99999 = not available	NA codes	________

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* Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description	Alternative Layout Documentation*	
				Parental Dependency	
FH	639	1	Student Parental Dependency Status 1991	field specification	________
			1 = yes	codes	________
			2 = no		________
			9 = not available	NA codes	________
				Student Income	
FI	640-645	6	Student Income	field specification	________
			000001-999998	codes	________
			999999 = not available	NA codes	________
				Parent's Income	
FJ	646-651	6	Parent's Income	field specification	________
			000001-999998	codes	________
			999999 = not available	NA codes	________

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Preferred File Layout

Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
GK	820-823	4	Course 5 Number 0000-9998	field specification codes	Course 5 Number ____________________ ____________________
GL	824-853	30	Course 6 Name Enter name	field specification codes	Course 6 Name ____________________ ____________________
GM	854-857	4	Course 6 Number 0000-9998	field specification codes	Course 6 Number ____________________ ____________________
GN	858-887	30	Course 7 Name Enter name	field specification codes	Course 7 Name ____________________ ____________________
GO	888-891	4	Course 7 Number 0000-9998	field specification codes	Course 7 Number ____________________ ____________________

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Ref.	Start/ End Fields	Field Length	Field Description		Alternative Layout Documentation*
G.	**Student Courses Taken (Fall 1991)**				
GA	652-653	2	Field check GA		
GB	654-683	30	Course 1 Name Enter name	field specification codes	Course 1 Name ________________ ________________
GC	684-687	4	Course 1 Number 0000-9998 9999 = not available	field specification codes	Course 1 Number ________________ ________________
GD	688-717	30	Course 2 Name Enter name	field specification codes	Course 2 Name ________________ ________________
GE	718-721	4	Course 2 Number 0000-9998	field specification codes	Course 2 Number ________________ ________________
GF	722-751	30	Course 3 Name Enter name	field specification codes	Course 3 Name ________________ ________________
GG	752-755	4	Course 3 Enrolled Number 0000-9998	field specification codes	Course 3 Enrolled Number ________________ ________________
GH	756-785	30	Course 4 Name Enter name	field specification codes	Course 4 Name ________________ ________________
GI	786-789	4	Course 4 Number 0000-9998	field specification codes	Course 4 Number ________________ ________________
GJ	790-819	30	Course 5 Name Enter name	field specification codes	Course 5 Name ________________ ________________

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* Use additional or other pages if necessary to provide documentation for file layout and codes for variables included.

OMB NO. 1875-W097
EXP. DATE 7/95
956645

National Study of
Student Support Services

Nonresponse followup

Telephone Survey

Sponsored by:

U.S. Department of Education
Office of the Under Secretary

Conducted by:

Westat, Inc.
An Employee Owned Research Corporation
1650 Research Boulevard
Rockville, Maryland 20850

1994

Part A. Enrollment and Demographics

Before we begin the survey, we'd like to obtain the names and addresses of any colleges you may have attended since the fall of 1991.

A1. **Have you attended any school(s) other than the [INSERT SCHOOL NAME] since the fall of 1991?**

Yes	1	[GO TO A2]
No	2	[GO TO A3]

A2. **What was the name and address of the other school? [ENTER INFORMATION]**

School name ____________________

City ____________________

State ____________________

Zip ____________________

What was the last term you attended that college?

__________ / __________
Term Year

Did you attend any other college? [IF NO, GO TO A3; IF YES, ENTER INFORMATION]

Second school name
(if applicable) ____________________

City ____________________

State ____________________

Zip ____________________

Last term attended __________ / __________
Term Year

Any other? [IF YES, ENTER INFORMATION]

Third school name
(if applicable) ____________________

City ____________________

State ____________________

Zip ____________________

Last term attended __________ / __________
Term Year

A3. **What was your classification in college the last time you enrolled? [IF CURRENTLY ENROLLED, ENTER CURRENT STATUS] [CIRCLE ONLY ONE]**

Are you a... [READ LIST]

Freshman [0-30 CREDITS]	1
Sophomore [31-60 CREDITS]	2
Junior [61-90 CREDITS]	3
Senior [91+ CREDITS]	4
OTHER (SPECIFY) ____________________	5

____

A4. **Have you ever received an associate's or other 2-year degree?**

YES	1	[GO TO A4A]
NO	2	[GO TO A5]

A4A. **In what year did you receive this degree?**

Year _____

A5. **What is your marital status? [CIRCLE ONLY ONE]**

Are you...

Never married	1
Married	2
Separated	3
Divorced or widowed	4

A6. **Do you have any dependent children?**

YES	1	[GO TO A6A]
NO	2	[GO TO B1]

A6A. **How many dependent children do you have at home?** _________

Part B-I. Student Services Experience

The next questions are about your use of student services.

B1. Since entering college have you ever received any tutoring assistance?

YES.. 1 [GO TO B2]
NO.. 2 [GO TO B5]

B2. In which of the following subjects did you receive or are you receiving tutoring?

	YES	NO
a. Developmental or remedial math [CLARIFICATION: no credit or only institutional credit was received]............	1	2
b. Any other math courses....................	1	2
c. Developmental or remedial English [CLARIFICATION: no credit or only institutional credit was received]............	1	2
d. Any other English courses................	1	2
e. Science	1	2
f. Social science..................................	1	2
g. Foreign language	1	2
h. Other (SPECIFY)______________	1	2

____

B3. Did you have tutoring in the... [READ TERM DATE]

[IF YES, OBTAIN FREQUENCY] How frequently was that -- once or twice a term, monthly, biweekly, weekly, or more than once a week? [READ CATEGORIES]

[CHECK ONE RESPONSE ON EACH LINE]

Term	NO. [IF YES, ASK FREQUENCY]	Was that... Once or twice a term,	Monthly,	Biweekly or weekly,	More than once a week.
Fall/winter of 1991-92..................	☐0	☐1	☐2	☐3	☐4
Spring of 1992..............................	☐0	☐1	☐2	☐3	☐4
Fall/winter of 1992-93..................	☐0	☐1	☐2	☐3	☐4
Spring of 1993..............................	☐0	☐1	☐2	☐3	☐4
Fall/winter of 1993-94..................	☐0	☐1	☐2	☐3	☐4
Spring of 1994..............................	☐0	☐1	☐2	☐3	☐4

B4. Was your tutor(s) a...

	EVER		MOST FREQUENTLY
	YES	NO	[CHECK ONE]
Faculty member..	1	2	☐1
Undergraduate student	1	2	☐2
Graduate student	1	2	☐3
Other person hired by college	1	2	☐4

[IF MORE THAN ONE YES, ASK]

Which one was most frequent?

B5. Since entering college have you ever received counseling of any type?

YES.. 1 [GO TO B6]
NO.. 2 [GO TO B8]

B6. Which of the following types of counseling did you receive or are you receiving?

	YES	NO
a. Academic counseling....................	1	2
b. Career counseling....................	1	2
c. Financial aid counseling....................	1	2
d. Personal counseling....................	1	2
e. Peer counseling....................	1	2
f. Other (SPECIFY)______________ ______________	1	2

B7. Did you ever receive counseling in the [READ TERM DATE].

[IF YES, OBTAIN FREQUENCY] How frequently was that -- once or twice a term, monthly, twice a month, or weekly or more? [READ CATEGORIES]

[CHECK ONE RESPONSE ON EACH LINE]

Term	NO [IF YES, ASK FREQUENCY]	Was that.... Once or twice a term,	Monthly,	Twice a month,	Weekly or more.
Fall/winter of 1991-92....................	☐0	☐1	☐2	☐3	☐4
Spring of 1992....................	☐0	☐1	☐2	☐3	☐4
Fall/winter of 1992-93....................	☐0	☐1	☐2	☐3	☐4
Spring of 1993....................	☐0	☐1	☐2	☐3	☐4
Fall/winter of 1993-94....................	☐0	☐1	☐2	☐3	☐4
Spring of 1994....................	☐0	☐1	☐2	☐3	☐4

B8. How many, if any, of the following types of courses did you take over the period of fall 1991 to spring 1994? Count each semester/quarter as a separate course. How many did you take in...

[IF NONE CIRCLE 2. OTHERWISE, CIRCLE YES AND RECORD NUMBER]

	YES	NONE	Number	IF YES RECORD NUMBER	
Developmental or remedial math....................	1	2	______	______	
Developmental or remedial English (include writing and reading)....................	1	2	______	______	
Study skills....................	1	2	______	______	______
Basic skills....................	1	2	______	______	______
English as a second language (ESL)....................	1	2	______	______	______

B9. Have you received any of the following special services for physically or learning disabled students?

	YES	NO
a. Transportation....................	1	2
b. Readers....................	1	2
c. Interpreters....................	1	2
d. Note-takers....................	1	2
e. Other (SPECIFY)______________ ______________	1	2

B10. Since entering college, have you participated in any organized field trips to off-campus cultural events such as plays, concerts, or museums?

YES.. 1
NO.. 2

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B11. On a scale of 1 to 5, with 1 being not helpful and 5 being very helpful, please rate how helpful each of the following services was to you in college. [IF R NOT CURRENTLY ATTENDING SCHOOL OR USING THE SERVICE, ASK R TO ANSWER QUESTION IN TERMS OF THE PERIOD IN WHICH THE SERVICE WAS USED. IF RESPONDENT NEVER USED THE SERVICE, CIRCLE NA.]

[PROBE: On a scale of 1 to 5, with 1 being "not helpful" to 5 being "very helpful," how would you rate...]

[CIRCLE ONE CHOICE ON EACH LINE]

		NEVER USED NA	NOT HELPFUL				VERY HELPFUL
a.	Tutoring by faculty or teaching assistants	0	1	2	3	4	5
b.	Tutoring by other students not including informal help from friends	0	1	2	3	4	5
c.	Personal counseling	0	1	2	3	4	5
d.	Academic counseling	0	1	2	3	4	5
e.	Financial counseling	0	1	2	3	4	5
f.	Job or career counseling	0	1	2	3	4	5
g.	Basic skills or developmental instruction in reading or writing	0	1	2	3	4	5
h.	English as a second language, ESL, instruction	0	1	2	3	4	5
i.	Basic skills or developmental instruction in mathematics	0	1	2	3	4	5
j.	Help in developing good study skills, or test taking skills	0	1	2	3	4	5
k.	General orientation to campus life, career choices, etc.	0	1	2	3	4	5
l.	Organized field trips to off-campus events, for example, plays, concerts, museums	0	1	2	3	4	5
m.	Special services for physically disabled students, for example, readers, transportation	0	1	2	3	4	5
n.	Academic or counseling assistance in native language other than English	0	1	2	3	4	5
o.	Computer-assisted study labs	0	1	2	3	4	5
p.	Organized group study sessions with other students	0	1	2	3	4	5

Part B-II. The Federal Student Services Program

B12. The federal government sponsors a number of programs to provide funds to colleges and universities for special services such as tutoring, counseling, developmental courses, and referrals. The overall name of the federal program is Student Support Services (SSS). The name of the program on your campus in 1991-92 was [INSERT NAME OF PROGRAM]. Did you participate or receive services from the SSS project at any time over the last 3 years?

YES.. 1 [GO TO B13]
NO.. 2 [GO TO C1]

B13. How many semesters or quarters did you participate in the project and receive services?

CHECK APPROPRIATE BOX

ENTER NUMBER ________ semesters ☐1
quarters ☐2

B14. On a scale of 1 to 5, with 1 being "not helpful" and 5 being "very helpful," how helpful were the services to you in each of the following areas?

[RATE ON SCALE OF 1 TO 5
1 = NOT HELPFUL
5 = VERY HELPFUL]

(PLEASE ENTER A RATING FOR EACH LINE)

a. Improving your overall academic performance .... ____
b. Improving your employment opportunities .... ____
c. Helping you solve campus problems......... ____
d. Helping you solve personal problems .... ____
e. Improving your social interactions .... ____
f. Improving your basic skills .... ____
g. Helping you pass a specific course .... ____
h. Keeping you in school .... ____

B15. Using a scale of 1 to 5, with 1 being "strongly disagree" and 5 being "strongly agree," please indicate the extent to which you agree or disagree with each statment I will read.

[PROBE: Do you...]	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE
a. The SSS program helped me to stay in school...........	1	2	3	4	5
b. I have more confidence in myself as a student now than I did when I began college as a result of the SSS program..	1	2	3	4	5
c. The SSS staff has been very supportive of me in my efforts as a student	1	2	3	4	5
d. The SSS staff has been accessible to me when I needed help	1	2	3	4	5
e. My skills in organization have been improved from being in the SSS program....................................	1	2	3	4	5
f. The SSS program has helped me to make career plans	1	2	3	4	5
g. My long-range planning skills have improved as a result of participating in the SSS program..........	1	2	3	4	5
h. Overall, I am satisfied with the SSS program	1	2	3	4	5
i. I would recommend the program to friends and relatives..	1	2	3	4	5
j. I was more motivated to continue school when I started than I am now	1	2	3	4	5
k. Because of the SSS program, I am more aware of college/university and community resources (such as financial aid, daycare, and student support services) and how to use them	1	2	3	4	5

B16. Do you have any suggestions for improving the SSS program? [RECORD VERBATIM: IF ADDITIONAL SPACE NEEDED USE BACK OF FORM]

____

____

____

Part C. Employment

The next questions have to do with your employment.

C1. Are you currently working for pay or profit? This includes self-employment or a job from which you are temporarily absent. If you are a student, count jobs required as part of financial aid award, for example, work-study.

YES .... 1 [GO TO C5]
NO .... 2 [GO TO C2]

C2. Have you looked for work at any time during the past four weeks?

YES 1
NO 2

C3. Would you be available for work at this time?

YES .... 1 [GO TO C15]
NO .... 2 [GO TO C15]

C4. For what type of organization or industry do you work? [FOR EXAMPLE: ACCOUNTING FIRM, DAYCARE CENTER, TELEVISION MANUFACTURER, EDUCATIONAL FACILITY, FOOD SERVICES]

____

____

C5. What is your job title or what do you do? [FOR EXAMPLE: WAITER/WAITRESS, SALESPERSON, AUTO MECHANIC, CLERK, WORDPROCESSOR, TEACHER]

____

____

C6. How many hours per week are you currently working for pay? ____________ hours

C7. At what rate (before deductions) are you paid on this job? Include tips as part of salary.

[CIRCLE ONE]

$___________.____ per
Salary or Earned Income

HOUR 1
DAY 2
WEEK 3
MONTH 4
YEAR 5

C8. About how long have you had your current job? [IF LESS THAN ONE MONTH ENTER 1]

CHECK APPROPRIATE BOX

ENTER NUMBER ________ months ☐1
years ☐2

C9. To what extent is your current employment related to your college studies? Would you say... [CIRCLE ONLY ONE]

Closely 1
Somewhat 2
Not at all 3

C10. On a scale of 1 to 5, with 1 equal to "not at all helpful" and 5 equal to "very helpful," how would you rate your college studies in each of the following areas as to helpfulness with regard to your current employment? [CIRCLE ONLY ONE ON EACH LINE]

	NOT AT ALL HELPFUL				VERY HELPFUL
a. Obtaining your job	1	2	3	4	5
b. Obtaining desired salary	1	2	3	4	5
c. Performing job	1	2	3	4	5
d. Advancement in company or on job	1	2	3	4	5

C11. Are you actively looking for a different job?

YES 1
NO 2

C12. Do you consider your job to be a temporary or permanent job?

TEMPORARY JOB 1
PERMANENT JOB 2

C13. How would you rate your job with regard to career potential? Would you say it is... [CIRCLE ONE]

A job with definite career potential 1
A job with possible career potential 2
A job without much career potential 3

C14. What is your level of satisfaction with your current job? Would you say... [CIRCLE ONE]

High 1
Medium 2
Low 3

C15. With regard to career plans, would you say you... [CIRCLE ONLY ONE]

Have definite plans	1
Have probable plans	2
Are not really sure of plans	3
Are not at all sure of plans	4

C16. What kind of work do you think you will be doing in 5 to 10 years? [RECORD VERBATIM AND CODE BELOW. DO NOT READ LIST; CIRCLE ONLY ONE: CODE LATER]

CLERICAL such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent	1
CRAFTSMAN such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter	2
FARMER, FARM MANAGER	3
HOMEMAKER	4
LABORER such as construction worker, car washer, sanitary worker, farm laborer	5
MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official	6
MILITARY such as career officer, enlisted man or woman in the Armed Forces	7
OPERATIVE such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver	8
PROFESSIONAL such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including school teacher	9
PROFESSIONAL such as clergyman, dentist, physician, lawyer, scientist, college teacher	10
PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner	11
PROTECTIVE SERVICE such as detective, police officer or guard, sheriff, fire fighter	12
SALES such as salesperson, advertising or insurance agent, real estate broker	13
SCHOOL TEACHER such as elementary or secondary	14
SERVICE such as barber, beautician, practical nurse, private household worker, janitor, waiter	15
TECHNICAL such as draftsman, medical or dental technician, computer programmer	16
NOT WORKING	17

Part D. Educational Plans and Experiences

D1. Which of the following best describes your current status with regard to college?

[CIRCLE ONLY ONE]

You have already completed your degree	4	[GO TO D3A]
You are attending full time	1	[GO TO D2A]
You are attending part time	2	[GO TO D2B]
You are not currently enrolled	3	[GO TO D2C]

D2. [USE APPROPRIATE QUESTION]

D2A. Please indicate which of the following reasons might make you consider leaving college. [READ LIST]

D2B. Of the following reasons, please indicate which ones are reasons why you are attending college part time? [READ LIST]

D2C. Of the following reasons, please indicate which are reasons why you left college. [READ LIST].

	I. (CIRCLE ALL THAT APPLY)	II. (CIRCLE ONE MAIN REASON)
a. Poor personal health	1	1
b. Do not have enough money	2	2
c. Poor grades	3	3
d. Uncertain about career goals or changed career goals	4	4
e. To accept or keep job	5	5
f. Marriage	6	6
g. Pregnancy, care of children	7	7
h. To enter military	8	8
i. Courses too difficult	9	9
j. Courses not relevant to work I want to do	10	10
k. Parents want me to quit	11	11
l. Expelled or suspended	12	12
m. Would not consider leaving school under any circumstance	13	13
n. Other (SPECIFY________) ____________________	14	14

D2D. Which of the reasons would you say is the main reason?

[REPEAT APPLICABLE CATEGORIES CIRCLED IF NEEDED. IF R ONLY CHOSE ONE, CIRCLE WITHOUT ASKING]

D3A. What is the highest academic degree you would like to obtain?

D3B. What is the highest degree you expect to obtain?

[CIRCLE ONE IN EACH COLUMN]

	WOULD LIKE TO OBTAIN	EXPECT TO OBTAIN
NONE	1	1
VOCATIONAL CERTIFICATE	2	2
ASSOCIATE'S (A.A. OR EQUIVALENT)	3	3
BACHELOR'S (B.A., B.S., ETC.)		4
MASTER'S (M.A., M.S., ETC.)	5	5
PH.D. OR ED.D.	6	6
M.D., D.O., D.D.S., OR D.V.M. (MEDICAL)	7	7
LL.B. OR J.D. (LAW)	8	8
B.D. OR M.DIV. (DIVINITY)	9	9
OTHER	10	10

D4. If you are planning to continue with college, do you have any concerns about your ability to finance your college education? [CIRCLE ONE]

Would you say you have..

None, [YOU ARE CONFIDENT THAT YOU WILL HAVE SUFFICIENT FUNDS]	1
Some concern, [BUT YOU WILL PROBABLY HAVE ENOUGH FUNDS]	2
Major concern, [YOU ARE NOT SURE YOU WILL HAVE ENOUGH FUNDS TO COMPLETE COLLEGE]	3
NA, you do not plan to continue further	4

D5. Do you plan to enroll (or have you enrolled) in college for the fall of 1994? [CIRCLE ONLY ONE]

YES, full time	1	[GO TO D6]
YES, part time	2	[GO TO D6]
Maybe	3	[GO TO D6]
NO	4	[GO TO D7]

D6. If you plan to enroll (or have enrolled), do you plan to enroll in the same school you last attended?

YES	1
NO	2

D7. How often did you do each of the following during your last term in college? The answer categories are never, once, sometimes, or often. [IF NOT CURRENTLY ENROLLED IN COLLEGE, ASK R TO ANSWER FOR THE LAST TERM IN WHICH ENROLLED.]

[CIRCLE ONE CHOICE ON EACH LINE]

	NEVER	ONCE	SOMETIMES	OFTEN
a. Talk with faculty in their offices about academic matters....	1	2	3	4
b. Meet with your advisor concerning your academic plans.....	1	2	3	4
c. Have informal or social contacts with your advisor or other faculty members about classes..........	1	2	3	4
d. Participate in study groups with other students outside of the classroom	1	2	3	4
e. Go places such as concerts, movies, restaurants, sporting events, etc. with friends from school..........	1	2	3	4
f. Participate in one or more student assistance centers or programs, for example, counseling programs, the learning skills center, minority student services, health services..........	1	2	3	4
g. Participate in school clubs, for example, student government, religious clubs, service activities	1	2	3	4
h. Attend career-related lectures, conventions, or field trips with friends..........	1	2	3	4
i. Participate in and practice with others for intramural or intercollegiate sports, music, drama, choir, etc.	1	2	3	4
j. Cut classes in which you were enrolled	1	2	3	4

D8. How well do(did) you like college? Would you say you... [CIRCLE ONLY ONE]

Are enthusiastic about it..........	1
Like it..........	2
Are more or less neutral about it..........	3
Don't like it..........	4

D9. If you could start over again, would you go to the same college you last attended? Would you say.... [CIRCLE ONLY ONE]

Yes, definitely..........	1
Probably yes	2
Probably no	3
No, definitely..........	4

D10. What is or was your major field of study or your expected major? [CODE ONLY ONE; DO NOT READ LIST]

A. AGRICULTURE	1
B. ARTS (ART, MUSIC, THEATER, ETC.)	2
C. BIOLOGICAL SCIENCES (BIOLOGY, BIOCHEMISTRY, BOTANY, ZOOLOGY, ETC.)	3
D. BUSINESS	4
E. COMPUTER SCIENCE	5
F. EDUCATION (INCLUDING PHYSICAL EDUCATION AND RECREATION)	6
G. ENGINEERING	7
H. HEALTH-RELATED FIELDS (NURSING, PHYSICAL THERAPY, TECHNOLOGY, ETC.)	8
I. HUMANITIES (LITERATURE, LANGUAGES, HISTORY, PHILOSOPHY, RELIGION, ETC.)	9
J. PHYSICAL SCIENCES (PHYSICS, CHEMISTRY, MATHEMATICS, ASTRONOMY, EARTH SCIENCE, ETC.)	10
K. SOCIAL SCIENCES (ECONOMICS, POLITICAL SCIENCE, PSYCHOLOGY, SOCIOLOGY, ETC.)	11
L. OTHER: (SPECIFY)	12
M. UNDECIDED	13

D11. Whatever your plans, do you think you have the ability to complete college? [CIRCLE ONLY ONE]

Would you say...

Yes, definitely	1
Yes, probably	2
Not sure	3
I doubt it	4
Definitely not	5

D12. What were your grades in the last full term you completed in school? [CIRCLE ONLY ONE]

a. Mostly A	1
b. About half A and half B	2
c. Mostly B	3
d. About half B and half C	4
e. Mostly C	5
f. About half C and half D	6
g. Mostly D	7
h. Mostly below D	8
i. Ungraded, a pass/fail option only	9

Part E. 1993-94 Enrollment

Were you enrolled at any time during the 1993-94 school year? [IF YES, GO TO E1; IF NO, CHECK BOX ☐ AND GO TO F1.

E1. How many miles is the college you were attending from your permanent home? [CIRCLE ONLY ONE]

Under 50 1
50 - 100 2
Over 100 3

E2. Where did you live during the 1993-94 school year? [CIRCLE ONLY ONE]

Dormitory or other college housing 1
Fraternity or sorority house 2
Private apartment or room within walking distance of the college 3
House, apartment, etc. away from the campus 4
With your parents or relatives 5

E3. During the time school was in session, about how many hours a week did you usually spend on activities that were related to your school work? This includes time spent in class and time spent studying.

_________ Hours per week

E4. How many hours per day, on average, did you study outside of class? [CIRCLE ONLY ONE]

Less than 1 1
1 2
2 3
3 4
4 or more 5

E5. During the time school was in session, did you work for pay on a job, including work-study? [CIRCLE ONLY ONE]

YES, ON CAMPUS .... 1 [GO TO E6]
YES, OFF CAMPUS .... 2 [GO TO E6]
NO, DID NOT WORK WHILE SCHOOL WAS IN SESSION .... 3 [GO TO E7]

E6. About how many hours per week did you usually work for pay during the time school was in session?

___________ Hours per week

[PROBE IF YES: Was the job on or off campus?]

E7A. Which of the following were sources of your educational expenses, that is, room, board, tuition and fees, in 1993-94?

	[CIRCLE ALL SOURCES]	[CIRCLE UP TO THREE MAJOR SOURCES]
a. Parents, other relatives, or friends	1	1
b. Spouse	2	2
c. Savings	3	3
d. Job during school year	4	4
e. Summer job	5	5
f. Grants or scholarships from your institution	6	6
g. Grants or scholarships from any other source	7	7
h. Government loans	8	8
i. Loans from any other source	9	9
j. GI Bill or other military support	10	10

E7B. Of these what were the three major sources? [READ CIRCLED CATEGORIES IF NEEDED]

E8. In 1993-94 were you:

	YES	NO
a. Living with your parents for more than five consecutive weeks?	1	2
b. Listed as a dependent on your parents' Federal Income Tax return?	1	2
c. Receiving assistance worth $600 or more from your parents?	1	2

E9. Did you participate in a work-study program at your school during the 1993-94 year?

YES 1
NO 2

Part F. Perspectives

F1. On a scale of 1 to 5, with 1 being the "highest 10 percent" and 5 being the "lowest 10 percent," please rate yourself on each of the following traits as compared with the average person of your age. We want the most accurate estimate of how you see yourself. (CIRCLE ONE CHOICE ON EACH LINE)

[PROBE: Compared with the average person your age, how would you rate yourself on ...]

	HIGHEST 10%	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE	LOWEST 10%
a. Academic ability	1	2	3	4	5
b. Artistic ability	1	2	3	4	5
c. Drive to achieve	1	2	3	4	5
d. Emotional health	1	2	3	4	5
e. Leadership ability	1	2	3	4	5
f. Mathematical ability	1	2	3	4	5
g. Physical health	1	2	3	4	5
h. Popularity	1	2	3	4	5
i. Intellectual self-confidence	1	2	3	4	5
j. Social self-confidence	1	2	3	4	5
k. Writing ability	1	2	3	4	5

F2. Please list 3 goals that you have for yourself right now.

1.______________________________

2.______________________________

3.______________________________

F3. Please list 3 things that you are proud of having done.

1.______________________________

2.______________________________

3.______________________________

F4. Using a scale of 1 to 5, with 1 being "Strongly Agree" and 5 being "Strongly Disagree," please indicate the extent to which you agree or disagree with each of the following statements. Respond to the statements with your feelings at present or with your expectations of how things will be. (CIRCLE ONE CHOICE ON EACH LINE)

	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE: NEUTRAL	DISAGREE	STRONGLY DISAGREE
a. Colleges should use their influence to improve social conditions in the state	1	2	3	4	5
b. It should not be very hard to get a B (3.0) average at college	1	2	3	4	5
c. I get easily discouraged when I try to do something and it doesn't work	1	2	3	4	5
d. I am sometimes looked up to by others	1	2	3	4	5
e. If I run into problems concerning school I have someone who will listen to me and help me	1	2	3	4	5
f. There is no use in doing things for people, you only find that you get it in the neck in the long run	1	2	3	4	5
g. In groups where I am comfortable, I am often looked to as a leader	1	2	3	4	5
h. I have had a harder time than most students at college	1	2	3	4	5
i. Once I start something, I finish it	1	2	3	4	5
j. When I believe strongly in something, I act on it	1	2	3	4	5
k. I am as skilled academically as the average applicant to college	1	2	3	4	5
l. I have encountered racism at college	1	2	3	4	5
m. People can pretty easily change me even though I thought my mind was already made up on the subject.	1	2	3	4	5
n. My friends and relatives don't feel I should go to college	1	2	3	4	5
o. My family has always wanted me to go to college	1	2	3	4	5
p. If course tutoring is available on the campus at no cost, I attend/attended regularly	1	2	3	4	5
q. I want a chance to prove myself academically	1	2	3	4	5
r. My college grades don't really reflect what I can do.	1	2	3	4	5

FOR FUTURE FOLLOWUP

ID: |_|-|_|_|_|_|-|_|_|-|_|

In order to verify and update our records, what is your full, current name and an address and telephone number where you can be reached during the coming year.

[OBTAIN REST OF INFORMATION LINE BY LINE, CHECKING SPELLING]

Your Name

Spouse's Full Name [If applicable]

Your Maiden Name [If female]

Street Address during coming year

City

State Zip Code

(   )

TELEPHONE NUMBER FOR COMING YEAR

In whose name is the telephone number listed? (CIRCLE ONE)

No phone	1
My name	2
Spouse's name	3
Other (PLEASE SPECIFY)______________	4

What is the name, address and telephone number of your parent(s) (or one parent).

Parent's Name

Street Address

City

State Zip Code

(   )

TELEPHONE NUMBER

In whose name is the telephone number listed? (CIRCLE ONE)

No phone	1
Parent's name	2
Other (PLEASE SPECIFY)______________	4

In order to better reach you for followup studies, what is the name and address of someone who will always know where to get in touch with you. Do not include someone living with you at your parents home or someone with whom you are currently living.

Name

Street Address

City

State Zip Code

Relationship to you

(   )

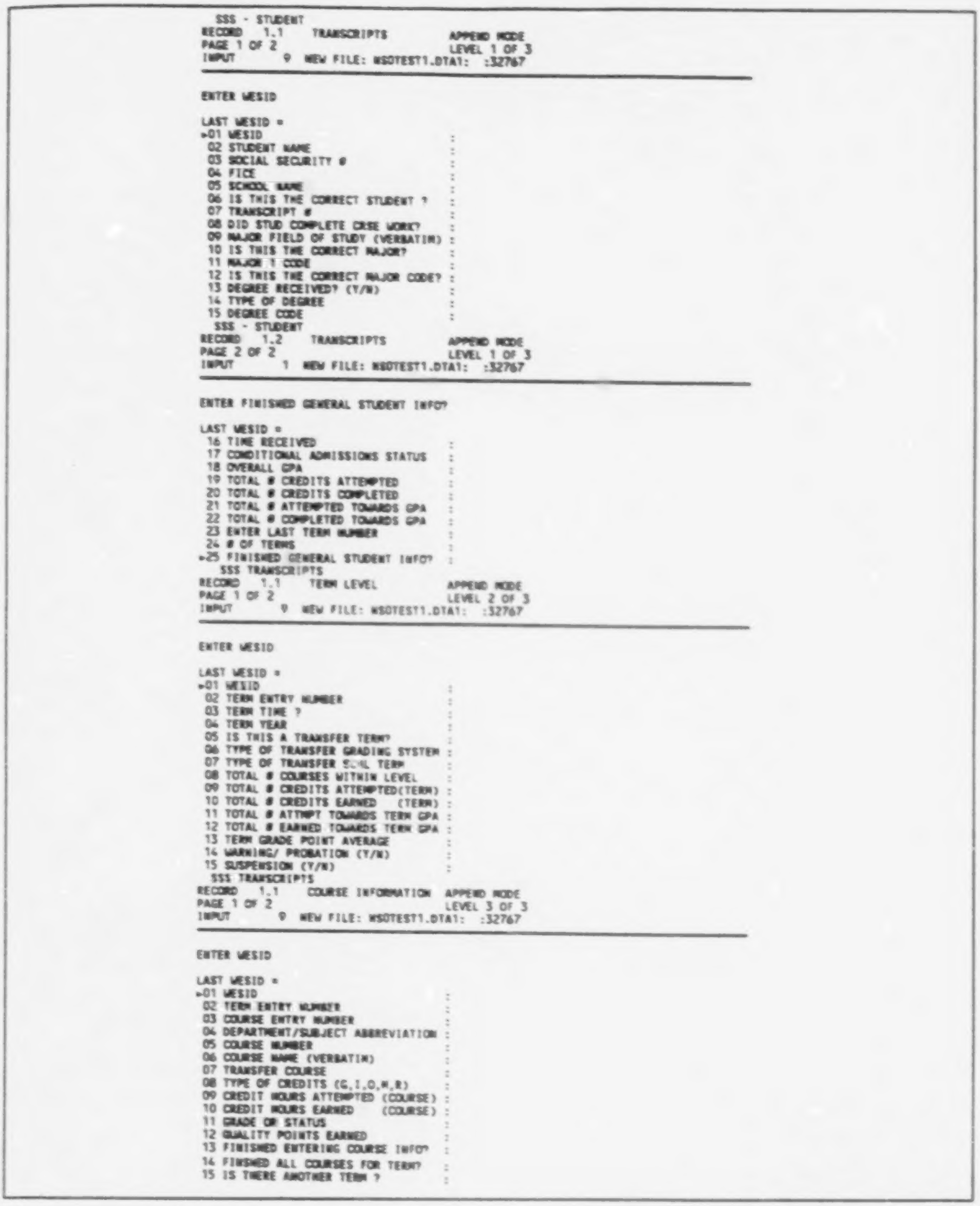
TELEPHONE NUMBER

In whose name is the telephone number listed? (CIRCLE ONE)

No phone	1
Person listed here	2
Other (PLEASE SPECIFY)______________	4

ADDITIONAL COMMENT SPACE FOR QUESTION B16.

Listing of transcript data items



```
  SSS - STUDENT
RECORD   1.1    TRANSCRIPTS         APPEND MODE
PAGE 1 OF 2                         LEVEL 1 OF 3
INPUT       9  NEW FILE: WSOTEST1.DTA1:  :32767
________________________________________________

ENTER WESID

LAST WESID =
>01 WESID                          :
 02 STUDENT NAME                   :
 03 SOCIAL SECURITY #              :
 04 FICE                           :
 05 SCHOOL NAME                    :
 06 IS THIS THE CORRECT STUDENT ?  :
 07 TRANSCRIPT #                   :
 08 DID STUD COMPLETE CRSE WORK?   :
 09 MAJOR FIELD OF STUDY (VERBATIM) :
 10 IS THIS THE CORRECT MAJOR?     :
 11 MAJOR 1 CODE                   :
 12 IS THIS THE CORRECT MAJOR CODE? :
 13 DEGREE RECEIVED? (Y/N)         :
 14 TYPE OF DEGREE                 :
 15 DEGREE CODE                    :
  SSS - STUDENT
RECORD   1.2    TRANSCRIPTS         APPEND MODE
PAGE 2 OF 2                         LEVEL 1 OF 3
INPUT       1  NEW FILE: WSOTEST1.DTA1:  :32767
________________________________________________

ENTER FINISHED GENERAL STUDENT INFO?

LAST WESID =
 16 TIME RECEIVED                  :
 17 CONDITIONAL ADMISSIONS STATUS  :
 18 OVERALL GPA                    :
 19 TOTAL # CREDITS ATTEMPTED      :
 20 TOTAL # CREDITS COMPLETED      :
 21 TOTAL # ATTEMPTED TOWARDS GPA  :
 22 TOTAL # COMPLETED TOWARDS GPA  :
 23 ENTER LAST TERM NUMBER         :
 24 # OF TERMS                     :
>25 FINISHED GENERAL STUDENT INFO? :
   SSS TRANSCRIPTS
RECORD   1.1    TERM LEVEL          APPEND MODE
PAGE 1 OF 2                         LEVEL 2 OF 3
INPUT       9  NEW FILE: WSOTEST1.DTA1:  :32767
________________________________________________

ENTER WESID

LAST WESID =
>01 WESID                          :
 02 TERM ENTRY NUMBER              :
 03 TERM TIME ?                    :
 04 TERM YEAR                      :
 05 IS THIS A TRANSFER TERM?       :
 06 TYPE OF TRANSFER GRADING SYSTEM :
 07 TYPE OF TRANSFER SCHL TERM     :
 08 TOTAL # COURSES WITHIN LEVEL   :
 09 TOTAL # CREDITS ATTEMPTED(TERM) :
 10 TOTAL # CREDITS EARNED   (TERM) :
 11 TOTAL # ATTMPT TOWARDS TERM GPA :
 12 TOTAL # EARNED TOWARDS TERM GPA :
 13 TERM GRADE POINT AVERAGE       :
 14 WARNING/ PROBATION (Y/N)       :
 15 SUSPENSION (Y/N)               :
  SSS TRANSCRIPTS
RECORD   1.1    COURSE INFORMATION  APPEND MODE
PAGE 1 OF 2                         LEVEL 3 OF 3
INPUT       9  NEW FILE: WSOTEST1.DTA1:  :32767
________________________________________________

ENTER WESID

LAST WESID =
>01 WESID                          :
 02 TERM ENTRY NUMBER              :
 03 COURSE ENTRY NUMBER            :
 04 DEPARTMENT/SUBJECT ABBREVIATION :
 05 COURSE NUMBER                  :
 06 COURSE NAME (VERBATIM)         :
 07 TRANSFER COURSE                :
 08 TYPE OF CREDITS (G,I,O,N,R)    :
 09 CREDIT HOURS ATTEMPTED (COURSE) :
 10 CREDIT HOURS EARNED    (COURSE) :
 11 GRADE OR STATUS                :
 12 QUALITY POINTS EARNED          :
 13 FINISHED ENTERING COURSE INFO? :
 14 FINSHED ALL COURSES FOR TERM?  :
 15 IS THERE ANOTHER TERM ?        :
```

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SSS TRANSCRIPT

2.3 Step by Step Instructions for Keying and Entering the Transcripts

Below are instructions for highlighting and keying information from the transcript.

SCREEN 1: STUDENT LEVEL RECORD

There should be one student level record for each transcript.

Step 1 (01-06): **ENTER THE WESTAT ID. You will find a label with the student name and a 9-digit identification number on each transcript (WESID). Each student has a unique ID, the first digit indicates whether the student is an SSS student or a comparison student. The next 5 digits represent the school identifier, followed by 3 digits identifying the student. Once you enter the WESID, the student's Social Security number, school FICE, and school name will automatically appear. Check to be sure that the name on the screen matches the name on the transcript. A prompt will appear asking you whether this is the correct student ID. Enter "Y" if the response is yes and "N" if the response is no. If you type "N," Keyentry will send you back to the Westat ID.**

Step 2 (07): **ENTER TRANSCRIPT #.** The next step is to enter the transcript number. This field is set to 2, since this is the second time we have collected transcripts for these students. Press <enter> to confirm.

Step 3 (08): **DID STUDENT COMPLETE COURSE WORK SINCE LAST STUDY?.** If no courses were completed since the last time the study was done, then enter "N" and keyentry will skip to the next ID. If courses were taken, enter "Y" and keyentry will take you to the next field.

- Length 1 - character
- Y = yes
- N = No

Step 4 (09): **ENTER MAJOR VERBATIM.** This automatically appears and advances to next line. You are allowed up to 40 characters. If the major is different, and you return to this field, enter the correct major, verbatim, press <enter> and you will be advance back to line 10 (IS THIS THE CORRECT MAJOR?).

- If major is missing, enter "M."
- If undeclared is stated, enter "U."
- Length = Up to 40 characters.

Step 5 (10): **IS THIS THE CORRECT MAJOR?** You will receive this message. If the response is yes, enter "Y" and keyentry will automatically advance you to the next line. However, if the student major field has changed, enter "N" and use the F1 function key to return to line 9 (ENTER MAJOR VERBATIM).

Step 6 (11): **ENTER THE MAJOR CODE.** This automatically advances to the next field. The first time we did the study, this field is set to "999999" since this information was often missing from most transcripts. If the major code is different, and you return to this field, enter the correct code, press <enter> and you will be advanced back to line 12 (IS THIS THE CORRECT MAJOR CODE?). If a code is actually given, enter the code over the "999999." This must always be updated if the major is updated and there is a major code on the transcript.

- Length - 6 characters

Step 7 (12): **IS THIS THE CORRECT MAJOR CODE.** If the response is yes, enter "Y" and keyentry will automatically advance you to the next line. However, if the student major has changed, enter "N" and use to F! function key to return to line 11 (MAJOR CODE).

Step 8 (13): **DEGREE RECEIVED?** If the response is "YES", enter Y and keyentry will take you to the next line. If the response is "NO", you will automatically skipped to Step 18 "Overall GPA".

- Length 1 - character
- Y = Yes
- N = No

Step 9 (14): **TYPE OF DEGREE?** Up to six characters are allowed. See handout for possible responses. If the information cannot fit into the list of catagories, use one of the following 6 character abbreviations.

- Length 6 - characters
- Assoc - Associate
- Bash - for Bachelors
- Mast- for Master
- Doc- for Doctorate
- Tcert - teaching certificate
- Cert - other certification

Step 10 (15): **DEGREE CODE:** Enter the 2 digit numeric code for the type of degree. See handout.

-

Step 11 (16): **ENTER CONDITIONAL ADMISSIONS STATUS.** What was previously keyed will appear. This field does not require updating and will automatically be skipped.

- Y = Yes, conditional
- N = Not, conditional
- Length = 1 character

Step-by-step coding/keying instructions for transcripts (continued)

Step 12 (17): **ENTER OVERALL GPA.** It is also known as the cumulative GPA. This information should reflect all terms on the transcript. When GPA is expressed as a decimal, include the decimal point. The decimal point counts as 1 character.

- Length - 5 characters
- 99.98 = Transfer, GPA not available
- 99.99 = Missing or unable to determine
- Range = 00.00-04.50

Step 13 (18): **ENTER TOTAL # OF CREDITS ATTEMPTED.** Include all credits attempted including credits that count towards graduation, institutional credits, and any other type of credits. Override is allowed for this field if the number of credit hours attempted is greater than 200.

- Length - 6 characters
- Range = 000.00-200.00
- 999.99 = Missing

Step 14 (19): **ENTER TOTAL # OF CREDITS COMPLETED.** Again, include the total number of credits completed regardless of whether or not they count towards graduation. Override is allowed for this field if the number of credits completed is greater than 200.

- Length - 6 characters
- Range = 000.00-200.00
- 999.99 = Missing

Step 15 (20): **ENTER TOTAL # OF CREDITS ATTEMPTED TOWARDS GPA.** Only include credits that count towards GPA computation. Override is allowed for this field if the number of credits attempted towards GPA is greater than 200.

- Length - 6 characters
- Range = 000.00-200.00
- 999.99 = Missing

Step 16 (21): **ENTER TOTAL # OF CREDITS COMPLETED TOWARDS GPA.** Only include credits that count towards GPA computation. Override is allowed for this field if the number of credits completed towards GPA is greater than 200.

- Length - 6 characters
- Range = 000.00-200.00
- 999.99 = Missing

Step 17 (22): **ENTER LAST TERM NUMBER.** You will find this information on the list for each individual student.

- Length 2 - Character
- Range = 00-15
- 99 = Missing

Step 18 (23): **ENTER THE TOTAL # OF TERMS.** This should include all terms, including the terms we crossed out. Count every term and number the terms starting with 1. Enter the total number. Override is allowed if the # of terms is greater than 25.

- Length - 2
- Range = 00-25
- 99 = Missing

Step 19 (24): **Once all the student level information has been entered, keyentry will ask whether you are finished entering all student level information. If you are not finished entering all information, or you need to make changes to information already keyed, enter "N." Keyentry will take you back to top of the screen. Use the F1 function key to move up, and the F2 function key to move down. Once you are satisfied with your changes, return to line 24 and enter "Y."**

SCREEN 2: TERM LEVEL RECORD

Using this screen, you will enter separate term level information for each term on the transcript that was not crossed off. This will include all terms after Spring 1992, including transfer terms. Ignore any information for terms before that date. **Some schools only include transfer information in the first term the student was enrolled at their institution.** In such cases, be sure you check the transfer term carefully for courses that were taken after the last study. Use the list provided to check for the last transfer courses keyed two years ago. **Do not record transfer terms as part of that institution's regular term information. Please see your supervisor for further information on dealing with each individual school.**

Step 1 (01): WESTAT ID. The 9-digit identifier will appear automatically when you call screen 2.

Step 2 (02): **ENTER TERM ENTRY NUMBER.** The transcript contains information by terms. This number indicates for which term you are entering data. Continue numbering where we left off the last time. Your individual school listing will show the last term entered. This is a 2-character field. Keyentry will automatically enter the initial zero if the number of terms is less than 10.

Step 3 (03): **ENTER TERM TIME.** For terms other than Summer, Spring, Winter, or Fall use "OT." For transfer terms, where the term time/type is not specified, enter "TR."

- Length 2 characters
- SU = Summer
- FA = Fall
- SP = Spring
- OT = Other
- WI = Winter
- TR = Transfer, No term specified
- MM = Missing

Step 4 (04): **ENTER TERM YEAR.** You should enter information for terms not covered in the 1992 study. Keyentry will beep if you attempt to enter information for years prior to 1991. Use this as an opportunity to check to make sure that this information was not previously keyed. If the year is correct, override this field. Enter the last 2 digits only, e.g., 91, 92, 93, or 94.

- Length - 2 characters
- 91-94
- 99 = Missing/unknown

Step 5 (05): **TRANSFER TERM?** This field is set to "N." If the term is not a transfer term, press <enter> to confirm. If it is a transfer term, type "Y" to change. If you enter "N," keyentry will automatically skip step 6 and step 7.

- Y = Yes
- N = No

Step-by-step coding/keying instructions for transcripts (continued)

Step 6 (06): ENTER TYPE OF GRADING SYSTEM FOR TRANSFER TERM. This information will be missing for most transfer terms. Enter "M" for missing.

- L = Letter
- N = Numeric
- O = Other
- M = Missing

Step 7 (07): ENTER TYPE OF TRANSFER SCHOOL TERM. If you cannot determine the type of term system for transfer schools, enter "M" for missing.

- Q = Quarter
- S = Semester
- T = Trimester
- O = Other
- M = Missing

Step 8 (08): **ENTER TOTAL # OF COURSES WITHIN LEVEL.** Looking at the transcript, count the number of courses in the term for which you are entering data. For transfer terms, this number could include total number of courses transferring with the student (as opposed to per-semester).

98 = Transfer, unable to determine
99 = Missing

Step 9 (09): **ENTER THE TOTAL # OF CREDITS ATTEMPTED**. The total number of credits attempted includes both credits that apply towards GPA, and other credits (e.g., institutional or remedial credits). In other words, all credits attempted per term. For most transfer terms this information will be missing. When you are unable to determine the number of credits attempted, for transfer terms, enter 99.98. For a regular school term, if the total number of credits attempted is missing, enter 99.99. The decimal point counts as 1 character. Override is allowed if the number of credits attempted is greater than 90.

- Length - 6 characters
- Range = 000.00-090.00
- 999.98 = Transfer, unable to determine
- 999.99 = Missing or unclear

Step 10 (10): **ENTER THE TOTAL # OF CREDITS EARNED**. The total number of credits earned includes both credits that apply towards GPA, and other credits (e.g., institutional or remedial credits). If the student completed the course and received credits, include them in the total number of credits earned. If you are unable to determine the total number of credits earned, type 999.99. If the total number of credits earned is greater than the total number of credits attempted you will hear a beep and receive a message. You will still be allowed to continue. Your next step should be to check the transcript to confirm that the information you entered is correct. This will occur often for transfer terms, because we can not accurately determine the total number of credits earned. If the number of credits is greater than 90, override this field.

- Length - 6 characters
- Range = 000.00-090.00
- 999.98 = Transfer, unable to determine
- 999.99 = Missing or unable to determine

Step-by-step coding/keying instructions for transcripts (continued)

Step 11 (11): **ENTER THE TOTAL # OF CREDITS ATTEMPTED TOWARDS GPA**. For most schools, credits towards GPA are somehow separated from other credits. Pay special attention to directions and notes attached to each institution's transcripts on how to distinguish them. With few exceptions, most transfer credits will be excluded from this category, along with institutional and other credits. If you need additional help please see your supervisor. Decimals are allowed in this field; be sure to include the decimal point if applicable. If the number of credits attempted is greater than 90, override this field.

- Length - 5 characters
- Range = 00.00-90.00
- 999.98 = Transfer, unable to determine
- 999.99 = Missing or unable to determine

Step 12 (12): **ENTER THE TOTAL # OF CREDITS EARNED TOWARDS GPA**. Keyentry will beep and give you a message if this number is larger than the total number of credits attempted towards GPA on line 11. Again, you will be able to continue, but use this opportunity to check that the information you have keyed is correct. Decimal points are accepted and count as on character. If the # of credits is greater than 90, override this field.

- Length - 6 characters
- Range = 000.00-090.00
- 999.98 = Transfer, unable to determine
- 999.99 = Missing or unable to determine

Step 13 (13): **ENTER TERM GPA.** For most transfer terms this information will be missing. Include decimal point for GPA when it is given.

- Length - 5 characters
- 99.98 = Transfer, unable to determine
- 99.99 = Missing or unable to determine
- Range = 00.00-04.50

Step 14 (14): **IS STUDENT ON PROBATION/WARNING?** This field is set to "N" for No. If the student is not on probation, press <enter> to confirm. If student was placed on probation, type "Y."

- Y = Yes
- N = No

Step 15 (15): **IS STUDENT ON SUSPENSION?** This field is set to "N" for No. If the student is not on suspension, press <enter> to confirm. If student was placed on suspension, type "Y."

- Y = Yes
- N = No

Step 16 (16): **ARE YOU FINISHED ENTERING TERM LEVEL INFORMATION? If you feel that you have correctly entered all the term level information, enter "Y" and keyentry will take you to the course level screen. If, however, you are uncertain about some field(s), then type "N" and keyentry will take you back to the top of the screen. Review your work, using the F1 and F2 functions keys to scroll up and down. Make the necessary changes and return to line 16 and type "N".**

SCREEN 3: COURSE LEVEL RECORD

Step 1 (01): **WESID. The WESID will automatically appear when you call up this screen.**

Step 2 (02): **IS THIS THE CORRECT TERM ENTRY NUMBER?** When this screen first appears the term entry number entered on the previous screen will appear. This should serve as a reminder to you. For this round of the study, the first time this screen appears, the last number used 2 years ago will appear. Verify that term entry number is correct and <enter>. Remember, the term entry number on each course level record must always coincide with the term for which you are entering data.

- Length -2 characters
- Range 00-10

Step 3 (03): **ENTER THE COURSE ENTRY NUMBER.** Before keying courses, please count the total number of courses in each semester/term. Enter that number as the course entry number. Start recounting for each term. Some institutions give the total number of credits accepted from transfer schools, but courses for which the student received credit are not given. Type "88" for those cases and keyentry will automatically skip lines 3 through 14, which all ask for specific information about courses. If the course number is greater than the "total # of courses within level", in the term level, you will receive a beep. Override this field if the course entry number is greater than 30.

- Length - 2
- Range = 00-30
- **88 = Transfer, no courses specified, skip to line 15.**

Step 4 (04): **ENTER DEPARTMENT/SUBJECT ABBREVIATION. Enter verbatim whatever is given, do not abbreviate. For some institutions, this information will be missing. Enter "MMMMMM" for missing.**

- Length - 6 characters
- MMMMMM = Missing

Step 5 (05): **ENTER COURSE NUMBER**. Some institutions use a combination of alpha and numeric characters in their course numbering system. Enter the course number verbatim. Do not include section number.

- Length - 6 characters
- 999999 = Missing

Step 6 (06): **ENTER COURSE NAME (VERBATIM)**. Enter the course title as it is given, do not abbreviate. Up to 40 characters are allowed. Type one "M" when this information is missing.

- Length - 40 characters
- M = Missing

Step 7 (07): **IS THIS A TRANSFER COURSE?** This field is set to "N" for No. If the course is not a transfer course, press <enter> to confirm. If the course is a transfer course, enter "Y" to change, and you will automatically be skipped to Step 9.

- Y = Yes
- N = No

Step 8 (08): **TYPE OF CREDITS?** For this study we are attempting to distinguish credits that count towards GPA from other credits. If you cannot make the distinction please ask your supervisor for assistance. If credits count toward GPA enter "G." For some courses, credits are given, but these credits do not count towards GPA. For those courses, enter "I" for institutional. Use "O" for all other types of credits, including no credit. If a student withdrew from a class, and the course was a regular class, then credits should count towards GPA

- G = GPA credit
- I = Institutional credit
- O = Other Credit (including remedial and non credit)
- M = Missing
- R = Repeat and GPA

Step 9 (09): **ENTER CREDIT HOURS ATTEMPTED** (COURSE). Include both credits that apply towards GPA, and other credits (e.g., institutional or remedial credits). This information will often be missing for transfer courses; if it is missing, enter 99.98. You should also use 99.98 when a single column appears on the transcript showing the total number of credits awarded, for transfer courses. **Do not** assume that the total number of hours attempted and the total number of hours earned for transfer courses are the same. However, where the attempted hours for transfer courses are clearly stated, record those hours. Decimals are allowed for this field and they count as 1 character. If the credit hrs attempted is greater than 15, override this field.

- Length - 5 characters
- Range = 00.00-15.00
- 99.97 = Audit (skip to step 11)
- 99.98 = Transfer, information not available
- 99.99 = Missing

Step 10 (10): **ENTER CREDIT HOURS EARNED** (COURSE). Keyentry will beep and give you a message if the number of credit hours earned you entered is larger than the total number of credits attempted that you entered on line 8. You will be able to continue, but you should use this as an opportunity to check that the information you keyed is correct. This will occur most frequently with transfer courses, where the total number of credits attempted is unknown. If the number of credits earned is not stated, but the student received a passing grade (e.g., A, B, C etc.), assume that the total number of credits attempted and earned are the same. If the number of credits hrs earned is greater than 15, override this field.

- Length - 5 characters
- Range = 00.00-15.00
- 00.00 = No Credits earned
- 99.98 = Transfer, information not available
- 99.99 = Missing

Step-by-step coding/keying instructions for transcripts (continued)

Step 11 (11): **ENTER GRADE OR STATUS.** Some schools use a numeric grading system. Enter the grade as given, including +'s. For example, if the transcript gives the grade as C+, include the +. Some schools will list a type preceding the actual grade. Do not include type, only record the actual grade.

- Length-5 characters
- 99.98 = Transfer, information not available
- 99.99 - Missing

Step 12 (12): **ENTER THE QUALITY POINTS EARNED (IF AVAILABLE).** This information is not always available. Generally it's the courses that count towards GPA that carries quality points. Schools vary in assigning quality points, so pay special attention to notes and guidelines for handling individual schools.. See your supervisor if you are still uncertain. Enter "999.99" for missing. For transfer courses, use "999.98", do not use "000.00." If the quality points earned is greater than 60, override this field.

- Length-6 characters
- Range = 000.00-060.00
- 000.00 = No quality points earned
- 999.98 = Transfer, information not available
- 999.99 = Missing

Step 13 (13): **ARE YOU FINISHED ENTERING COURSE LEVEL INFORMATION?** If you feel that you have correctly entered all the course level information for that course, type "Y." If you want to review your work, type "N" and keyentry will take you back to the top of the course level screen. Use your F1 and F2 function keys to make changes. When all changes are made, return to line 12 and enter "Y."

- Length 1 character
- Y = Yes
- N = No

Step 14 (14): **ARE YOU FINISHED ENTERING ALL TERM COURSES?** Enter "Y" in this field only if this is the last course to be entered in the term. If there are other courses to be entered, type "N" and you will be given a fresh course level screen.

- Length 1 character
- Y = Yes
- N = No

Step 15 (15): **IS THERE ANOTHER TERM?** You will be given this message only when the response to the previous screen is "Y."

APPENDIX C

LITERATURE REVIEW MATRICES

Table 1a. Academic advising and academic counseling

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Buck, C.B., and Pineda, C. (1985). A Peer Counseling Training Module for Campus Outreach and Support Services. Paper presented at the Annual Meeting of the California Association for Counseling and Development, San Diego, CA.	Peer counseling programs have been developed to facilitate academic and social integration. This article described the training given to peer counselors in the Academic Success Program at the University of California-San Diego.	The peer counselors worked with students in the Educational Opportunities Program (EOP) and/or the Student Affirmative Action (SAA). These were underrepresented and high-risk students.	Peer counselors assisted with study skills, teaching techniques, and self-concept development strategies. In addition, they maintained regular hours, gave presentations, and visited students in the dormitories.		▪ Peer counselors, peer tutors, and study skills assistance enrolled in a practicum where they were instructed in the psychology of teaching, group skills development, active listening and counseling skills, conflict management, establishing relationships, and sensitivity to ethnic issues. Role playing was a crucial component of this training. ▪ Peer counselors began their work during the Summer Bridge program. Additional training was also provided. ▪ Peer counselors handled caseloads of approximately 30 students. Peer counselors helped students with course election, obtaining financial aid, and so forth, as well as referring students to academic support services.

Table 1a. Academic advising and academic counseling (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Burrell, L.F., and Trombley, T.B. (1983). Academic Advising with Minority Students on Predominately White Campuses. *Journal of College Student Personnel*, 24(2):121-126.	This study examined minority students' perceptions of academic support services and their preferred sources of assistance.	The sample included 542 minority students at five colleges. Of these students, 96 percent were black. They were selected from institutions where minority enrollment ranged from 2 percent to 10 percent of the total student body.	Various academic support services, including academic advising.	The outcome measures used were students' perceptions of academic support services and their preferred sources of assistance.	The survey revealed the following results: ■ Of the students surveyed, 62 percent indicated that academic advising was the most valuable support service. ■ At one campus, however, where 73 percent of the respondents were upperclassmen, career planning and placement was the most important service offering. ■ The students surveyed were more likely to seek help from a minority advisory (41 percent) than a white advisor (11 percent). ■ Minority students also indicated that they were more likely to seek assistance for personal or financial problems from family or friends. The authors recommend that majority faculty members should be sensitized to the needs of minority students.

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Table 1a. Academic advising and academic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Droge, D., and Roundy, J. (1992). Meeting the Needs of At-Risk College Freshmen Through Academic Advising: The "Enriched" Public Speaking Course. Paper presented at the Annual Meeting of the Speech Communication Association, Chicago, IL.	This paper described a program at the University of Puget Sound in Washington State. It was developed by a faculty member in collaboration with the university's director of academic and career advising. Every incoming freshman was assigned an academic advisor in his or her major field of study, and was also given the opportunity to select up to four "advising sections" from among 50 courses. These courses were offered in most disciplines and met institutional core requirements.	The sample included 20 students participating in an "enriched" entry-level speaking and writing courses. Of these students, 7 were in the bottom 10 percent of freshmen who enrolled in the fall of 1989. In addition, the mean composite test scores and GPA for the advising section was lower than the overall levels posted by the entering class.	Small advising sections of 15 to 20 students were enrolled in "enriched" speaking and writing courses. The classes were heterogeneous, grouping at-risk students with other students. First-year students were able to enroll in up to four advising sections that counted toward core requirements. The course instructor served as a student advisor and used to the following techniques: ■ Administered a learning styles inventory to students to help them develop an understanding of their own learning preferences and appropriate strategies for completing academic work. ■ Used additional texts; ■ Used public-speaking assignments to improve students' abilities to develop arguments; ■ Provided intensive advisement to some students, encouraging them to carry a lighter course load first semester and to take advantage of courses offered by the Learning Center.	The outcomes measured included retention rates, academic probation rates, and GPA.	■ The results showed that the advising section participants had higher retention rates, lower rates of academic probation, and "favorable" GPAs when compared to the overall freshman class. More specifically, the advising section has an 80 percent retention rate through the fall of 1992 compared with 73 percent for the overall freshman class. ■ The resuls also suggested the following: 1. Speech communication instructors are well suited for academic advising because of their awareness of inter-personal communication techniques. 2. The involvement of faculty, including senior faculty, as advisors for freshmen through introductory courses is critical.

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Table 1a. Academic advising and academic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Earl, W.E. (1988). Intrusive Advising of Freshmen in Academic Difficulty. *NACADA Journal, 8(2):27-33.*	Intrusive advising was defined as deliberate, structured intervention at the first sign of academic difficulty in order to motivate the student to seek help. This study examined the effects of intrusive advising on a group of probationary first-year students.	The sample included probationary first-year students at Old Dominion University.	The intrusive advising approach was based on the following theoretical principles: ■ The importance of academic and social integration to a student's persistence in college (from Tinto). ■ Students can be taught orientation skills through intrusive advising, thus, improving their institutional fit. ■ Intrusive advising depends on student motivation to succeed rather than on student volunteerism or motivation to seek help. The intrusive advising approach used at Old Dominion University including: ■ Letters sent to all probationary first-semester students asking them to contact an academic advisor; ■ Initial explanatory session with counselor; ■ Commitment to a course of action; ■ Followup appointments; and ■ Assistance in selecting next semester's courses.	The outcome measures used were GPA and retention rates.	A three semester evaluation of students placed on academic probation at the end of their first semester revealed that students who participated in counseling sessions showed statistically significant grade changes and retention rates compared with a control group.

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Table 1a. Academic advising and academic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Francis, K.C., McDaniel, M., and Doyle, R.E. (1987). Training in Role Communication Skills: Effect on Interpersonal and Academic Skills of High-Risk Freshmen. *Journal of College Student Personnel*, 28(2):151-156.	This study measured the impact that group counseling (with a focus on interpersonal communication) had on interpersonal skills, study habits and attitudes, and academic achievement.	The sample included 39 freshmen who were accepted into Brooklyn College's Search for Education, Elevation, and Knowledge (SEEK) program and who were also enrolled in developmental education courses. Of the participants, 67 percent were black and 24 percent were Hispanic. These students were divided into two groups. Both groups received academic counseling, but the treatment group also received training in communication skills. The groups met twice a week over a 15-week period.	Group academic counseling and training in communication skills (for the treatment group only) were received by the students. The interpersonal communication skills training was based on two facets of Doyle's model (1982): attending and clarifying. Attending is the process of active listening. Clarifying is the use of questions to check perceptions. Counseling sessions were conducted by professional counselors having 14 or more years of experience.	Four outcome measures were examined: 1. Communication skills; 2. GPAs; 3. Study habits; and 4. Study attitudes.	■ The treatment group showed positive gains in communication skills and GPA, but failed to exhibit a change in study habits and attitudes after one semester of the program. ■ The results suggested two major implications: 1. It is possible to increase interpersonal communication skills and academic achievement in a short period of time. 2. Counselors may be more effective when training high-risk students in basic communication skills rather than following an academic group approach.

Table 1a. Academic advising and academic counseling (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Giles-Gee, H. (1989). Increasing the Retention of Black Students: A Multimethod Approach. *Journal of College Student Development*, 30(3):196-200.	This study evaluated the effect of an individualized advisement program on participating students.	All incoming first-year black students (n=128) at Towson State University in the fall of 1986 were invited to participate.	Each participant was assigned to a faculty advisor who initiated contact and assisted the student with academic self-assessment (students were administered a series of questionnaires designed to help identify academic strengths and weaknesses). Students received study skills training through a psychology course they were encouraged to take. Study skills training was also available through regular university programs.	The outcome measures used were GPA and retention rates.	■ At the end of the first semester, 58 percent of the black freshmen had received GPAs of 2.0 or better compared with 50 percent of the black freshmen who entered in the fall of 1986. Although this difference was not statistically significant, at the end of the second semester the percentages of black freshmen attaining a 2.0 or above was 60 percent and 44 percent, respectively. This difference was significant. ■ Of the initial 128 students, 117 (91 percent) were still enrolled during the second semester. ■ By the end of the second semester, 20 students were dismissed from the program. Among these, 14 (70 percent) were commuter students. ■ After 1 year, 79.4 percent of the students were still enrolled compared with 81.9 percent of prior student cohorts. This difference was not significant. ■ During the fourth semester (spring 1988), 78 percent of the project's students were still enrolled compared with 67 percent of prior student cohorts that remained enrolled by fall of their junior year. ■ It was also found that faculty advisors fostered the use of tutoring services.

Table 1a. Academic advising and academic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Glennan, R.E., and Baxley, D.M. (1985). Reduction of Attrition Through Intrusive Advising. *NASPA (National Association of Student Personnel Administrators) Journal*, 22(3):10-14.	This study examined the impact of the retention program at Western New Mexico University. This institution had historically experienced high rates of attrition, reaching a peak in 1980-81 with an attrition rate of 65 percent for freshmen and 35 percent for sophomores. The retention program was established to provide advising, testing, developmental education, and more vertical degree options for entering freshmen.	The target groups included freshmen entering in the fall of 1981 and the fall of 1982.	The intrusive advising program was conducted by ten faculty members on released time for a quarter. Students were called in for advising several times a year, as necessary, based on academic difficulties. Advisors met with students to evaluate academic performance, to select courses, and to provide referrals to other counseling and student services. Incoming first-year students were placed in developmental courses (i.e., math, reading, and writing) according to their ACT scores. Students participating in these programs were housed in the University's General College until certain academic requirements were met. At that point, students were able to transfer into one of the baccalaureate degree-granting colleges.	The outcome measures included attrition rates, GPA, and earned credits.	The counseling and advisement program made key contributions to producing the following results: ■ University enrollment increased by 18 percent for the 1982-83 academic year and by 13 percent the following year. ■ Freshman attrition rates were reduced from 66 percent to 48 percent during 1981-82, and from 48 percent to 25 percent during 1982-83. ■ Freshmen attempted more hours, completed more hours, and earned a higher mean GPA. ■ The number of freshmen with low ACT scores (composite of 10 or less) who were still enrolled at the end of the semester increased 27 percent during 1981-82 and 1982-83. ■ The number of advisement sessions increased significantly and the number of personal-social counseling sessions were reduced by 67 percent.

Table 1a. Academic advising and academic counseling (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Hudesman, J., Avramides, B., Loveday, C., Wendell, A., and Griemsmann, R. (1986). Counseling Style: Its Impact on the Academic Performance of College Students in Special Programs. *Journal of College Student Personnel*, 27(3):250-254.	This study examined the impact of a structured counseling program on students' GPA and retention.	The sample included 247 first-year students at New York City Technical College who were enrolled in a special program for entering students with low high school GPAs and below poverty-level incomes. Of the students enrolled in the program, 85 percent were minority students.	Two forms of counseling were used. The treatment group developed a contract with their counselors and attended a series of three semistructured interviews in the first and third semesters. Contract provisions included academic activities as well as general counseling concerns. Subsequent counseling sessions were structured by the contract provisions. These sessions involved a review of students' work in each course. The control group attended three sessions of nondirective counseling. Second semester both groups received nondirective counseling.	The outcomes measured were GPA and retention. Outcomes were only reported for students who met with a counselor at least three times and completed relevant paperwork during the first semester.	■ Counseling style was related to first semester GPA as the treatment group had higher GPAs (2.01 compared with 1.71). ■ There were no significant differences between the two groups during the second semester, suggesting that there was little carryover effect of direct counseling. ■ At the start of the third semester, the retention rate for the treatment group was 58 percent compared with 61 percent for the nontreatment group. This suggested that counseling style was not related to retention.
Hunziker, C.M. (1984). *Evaluation of the Individualized Study Program: Early Warning System*. Davis, CA: University of California.	This study described the Learning Skills Center at the University of California-Davis, which operated a tracking and academic advising system for specially admitted high-risk students.	The sample included Equal Opportunity Program (EOP) participants attending the University of California-Davis who performed poorly academically during their first two quarters.	During the first two quarters, the Learning Skills Center identified EOP students with unsatisfactory grades. These students were contacted for an interview with Learning Skills Center staff.	The outcome measured was GPA.	The study found that students who followed the advice provided during the Learning Center interview performed better in terms of GPA than did other students.
Kobrak, P. (1992). Black Student Retention in Predominately White Regional Universities: The Politics of Faculty Involvement. *The Journal of Negro Education*, 61(4):509-530.	Large public universities with primarily white student enrollments must assume greater responsibility for black student retention. Organizationally at most universities the retention efforts are concentrated in the administrative staff. Kobrak addressed the need to involve faculty in retention efforts and cites other literature advocating faculty involvement as a critical part of a comprehensive retention strategy.				Several examples of university programs where faculty have an active role in advising students are provided, including the COPE program at Miami-Dade Community College, a program at Western Michigan University, and one at Brooklyn College.

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Table 1a. Academic advising and academic counseling (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Lopez, M., Clayton, E.R., Yanez, M., and Thompson, D.A. (1988). Intrusive Advising the Special Student Populations. *NASPA (National Association of Student Personnel Administrators) Journal*, 25(3):195-201.	This study examined a program at Central Washington University designed to promote equal opportunity to educationally disadvantaged students, learning disabled students, minority students, and migrant students.	The Educational Opportunities Program (EOP) was a comprehensive admissions and academic support program. EOP students were not eligible for regular admission (high school GPA under 2.5) and were determined to be educationally disadvantaged. Each year the program enrolled 60 freshmen: 10 to 20 percent minority; 5 to 10 percent older students, and 10 percent high income students.	In their first year, EOP students were required to attend advising sessions (2 per week with a peer advisor and 1 per week within a staff advisor), to have their course schedule approved, and to enroll in academic study skills class. Peer advising ended after the students' complete one academic quarter with a GPA above 2.0. Staff advisement continued for two additional semesters. The only developmental education course EOP students were required to take was an academic study skills course. About 90 percent of EOP students, however, also had to take remedial courses.	The outcomes measured were GPA and retention.	■ When program participants were compared with university students as a whole, the authors found positive trends in the areas of GPA and retention. At the end of the first year, students enrolled in EOP had a GPA close to the average for all university students (2.39 and 2.45, respectively), despite entering with a much lower GPA. Between the first and second year, retention was 62 percent for the university overall and 70 to 85 percent among EOP students. ■ The authors hypothesize that the success of the EOP program depends not only on the intrusive advising component, but also on the program's ability to refer students to other needed services. ■ Improvements in GPA and retention rates for learning disabled students and migrant students were also found. For example, prior to the establishment of a minority advisement program (open to all minority students), minority students had an attrition rate of almost 50 percent. After program implementation, first year minority retention rates reached 82 percent compared with 62 percent for the overall university population. In addition, minority mean cumulative GPA was 2.47 compared with 2.45 for the overall student population.

Table 1a. Academic advising and academic counseling (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Patrick, J., Furlow, J.W., and Donovan, S. (1988). Using a Comprehensive Academic Intervention Program in the Retention of High-Risk Students. *NACADA Journal, 8(1):29-34*	The study examined the impact of an academic advisement team, CORE, at Pennsylvania State University-DuBois. CORE was created to provide intensified academic counseling to high-risk freshman students.	The target group included 88 freshmen who entered in the CORE program during the 1985-86 academic year. They were compared with 115 non-CORE freshmen.	The university established an academic advisement team consisting of two professional counselors and six faculty members. Professional counselors provided training for the faculty advisors, emphasizing developmental academic advising and career counseling techniques. Students received intensified academic counseling in connection with a freshman experience course. The course content included career and educational planning, study skill improvement, decision making, information on academic policies, and personal adjustment to college life. Each student participating in the program was assigned to a specific advisor and met with his/her every other week during the first year.	The outcome measure studied was retention rates.	■ By the end of the first year, the retention rate for CORE students was 85.22 percent compared with 75.70 percent for non-CORE students. By the end of the second year, these rates were 82.71 and 69.44, respectively. ■ Cumulative GPA for non-science major CORE participants was 2.35 compared with 2.62 for non-science, non-CORE participants. For science majors, cumulative GPA was 2.44 and 2.41, respectively.

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Table 1a. Academic advising and academic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Trippi, J., and Cheatham, H.E. (1989). Effects of Special Counseling Programs for Black Freshmen on a Predominately White Campus. *Journal of College Student Development*, 30(1):35-40.	This study assessed the impact of student characteristics and the descriptive features of counseling programs on the academic achievement and persistence of black students attending a predominately white institution.	The sample included 212 black first-year students who enrolled in a large eastern university during the fall of 1985.	During the fall semester, all participants had at least one contact with a counseling staff member. These counselors were part of a special academic support unit designed to provide academic counseling to special populations. Counselors made extensive attempts to contact students including phone calls, hand written letters, and through the students' faculty advisor and roommate.	The outcome measures used were GPA and retention rates.	A total of 1,620 counseling contacts occurred. Of these, 70 percent involved academic adjustment, skills deficiency, course scheduling, financial need, introductory counseling session, and understanding institutional procedures and norms. Counseling did not have a significant effect on cumulative GPA. First-year cumulative GPA, however, was shown to have a strong relationship to persistence. The number of counseling contacts was also positively related to persistence as well as to continuing in good academic standing. The authors also found that there were more contacts between counselors and black students in developmental programs than among other groups. This suggests the need for a strong working relationship between staff in the special counseling programs and in the developmental programs. They also determined that counseling was more effective when it was initiated by the client. Based on the counseling programs, the authors made the following recommendations regarding special counseling services for black students: ▪ Establish an early relationship with students. ▪ Focus on action-oriented resolutions to short-range concerns. ▪ Maintain an ongoing counseling relationship. ▪ Recognize the limitations of intrusive techniques.

Table 1b. Nonacademic counseling

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Atkinson, D.R., Ponterotto, J.G., and Sanchez, A.R. (1984). Attitudes of Vietnamese and Anglo-American Students Toward Counseling. *Journal of College Student Personnel*, 25(5):448-452.	This study assessed the counseling attitudes and preferences of Vietnamese and Anglo-American students.	Questionnaires were given to 63 Vietnamese students and 52 Anglo-American students enrolled in the Educational Opportunities Program (EOP) at a California community college. The surveys were distributed during December 1982 and January 1983.	Counseling.	The outcomes measured were attitudes and preferences toward counseling.	■ Vietnamese students had less positive attitudes toward seeking professional psychological help than Anglo-American students. ■ Neither group of students showed clear-cut preferences for counselors of the same sex or ethnicity.
Boesch, R. and Cimbolic, P. (1994). Black Students' Use of College and University Counseling Centers. *Journal of College Students Development*, 35(3):212-216.	Previous research had shown that black students utilized counseling services at lower rates than nonblack students, and that black students preferred to interact with black counselors. This study examined three issues: (1) whether black and nonblack students used campus counseling centers differently; (2) whether black students at predominately white and predominately black campuses received counseling in different proportions; and (3) whether this proportion was affected by the presence of at least one black counselor.	Questionnaires requesting counseling data for the 1990-91 academic year were sent to counseling center directors. A total of 285 institutions with either predominately white or black student populations were surveyed.	Counseling services.		■ Fourteen percent of black students received some counseling, compared with 8 percent of nonblack students. ■ A higher percentage (11 percent) of black students saw counselors for emotional or social problems compared with nonblack students (7 percent). ■ The percentage of black students receiving counseling did not vary between predominantly black and predominantly nonblack institutions. ■ At predominantly nonblack schools, the percentage of black students counseled did not vary according to whether a black counselor was available.

Table 1b. Nonacademic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Davis, A. (1988). Peer Counseling in Higher Education: Essentials and Practice (Workbook). La Grande, OR: Eastern Oregon College.	This manual described the theory and techniques used in peer counseling in higher education. A major goal of most peer counseling programs was to promote the retention of high-risk students.				The author explored the following topics as they relate to peer counseling: ■ Academic and social integration (from Tinto), viewed as developmental objectives in a Piagetian framework where students move from the pre-operational level to basic operations and advanced operations. ■ Counseling relationship qualities, including empathy, warmth, and respect. ■ Counseling process stages of understanding, exploration, and action; and counseling techniques of reflection of feeling, reflection of content, probing, confrontation, suggestion, and diagnoses. ■ Intake interviewing components of establishing emotional contact; obtaining social, educational, and health history; evaluating psychological factors; career and employment issues; and discussion of counselor and client roles and expectations. ■ Decision-making problems of clients and rational decision-making models. ■ Applying the philosophies of nonviolence to counseling. ■ Techniques of rational behavior therapy. ■ Ethical concerns in

Table 1b. Nonacademic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Friedlander, J. (1989). *Evaluation of Santa Barbara City College's Matriculation Program (1983-1988).* Santa Barbara, CA: Santa Barbara City College.	Between 1983 and 1988, Santa Barbara Community College increased its funding, added components, and made refinements to its matriculation program. This study examined the matriculation program between 1983 and 1988 to determine whether increased program investment led to more positive student outcomes.	The study examined six cohorts of students: those entering for the first time in fall 1983, fall 1984, fall 1985, fall 1986, fall 1987, and fall 1988. Overall, the performance of over 14,000 students was studied.	The matriculation program included assessment and advisement to help students meet their educational goals.	Outcome measures included course completion and semester to semester persistence rates.	■ There was a steady increase in first to second semester persistence rates between 1983 and 1988, from 62 percent in 1983 to 73 percent in 1988. Blacks and Hispanics showed the most improvement on this measure over time. ■ While persistence rates beyond the second semester did increase over the 5-year period, the increase was not as substantial as that between the first and second semesters. ■ There was a slight increase in the percentage of courses passed during the first and second semesters between the 1985 and 1988 cohorts. After the second semester, however, the percentage of courses passed remained relatively constant. ■ For the fall 1987 cohort, first to second and first to third semester persistence rates were higher for participants than nonparticipants.

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Table 1b. Nonacademic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Miles, G.G., and McDavis, R.J. (1982). Effects of Four Orientation Approaches on Disadvantaged Black Freshmen Students' Attitudes Toward the Counseling Center. *Journal of College Student Personnel*, 23(5):413-418.	This study examined the impact of four different orientation approaches used to inform disadvantaged students about the university counseling center. The authors used the assumption that counseling information was particularly important for black students to receive.	The sample included 86 black students at the University of Florida. Of these students, 48 were entering the Program for Academic Counseling and Tutoring (PACT) and 38 had participated in the Special Services Program during the summer of 1980.	Four different methods of orientation were used to inform students about services available through the counseling center: 1. A large group orientation (n=31); 2. A large group orientation and a personalized letter from the counseling center director (n=18); 3. A large group orientation, a tour of the counseling center, and a small group orientation led by a black counselor (n=19); and 4. A large group orientation and an individualized orientation with a black counselor (n=18).	The outcomes measures used included: ▪ Students' attitudes toward discussing problems; ▪ Students' knowledge of services; and ▪ Students' perceived use of the center to discuss future problems. A 6-week followup of students was conducted to collect some of this information. The Counseling Appropriateness Checklist (CACL) was used to measure attitudes, and a self-report questionnaire was used to measure knowledge.	▪ The small group orientation approach was the most effective method of transmitting information about counseling center services. ▪ The individual orientation approach had the largest impact on perceived future use of services for personal problems. ▪ Scheduling a visit to the counseling center as part of the orientation process increased students' knowledge of available services.

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Table 1b. Nonacademic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Pulliams, P. (1988). *The Emerging Role of Community College Counseling*. Philadelphia, PA: Community College of Pennsylvania.	This article discussed strategies counselors should use to increase student retention. In addition, it recommended that universities recognize the need for cost-effective strategies in implementing counseling programs.				The author recommended that counselors use the following strategies to increase minority student retention: ■ Establish a minority mentoring program sponsored by faculty and staff; ■ Target minority students for orientation and special courses; ■ Use faculty as a link between the university and minority students; ■ Use minority student peers to assist with orientation; and ■ Promote staff development to help faculty identify learning needs of students with nontraditional backgrounds. The author also recommended that universities recognize the need for cost-effective strategies in implementing counseling programs: ■ Expand counseling services by establishing linkages to other professionals both within and outside the college; ■ Increase the use of peer counselors, volunteers, and paraprofessionals; ■ Consider charging fees for some services; ■ Evaluate the effectiveness of services through an annual review; and ■ Learn about new resource management approaches

Table 1b. Nonacademic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Rollock, D.A., Westman, J.S., and Johnson, C. (1992). A Black Student Support Group on a Predominately White University Campus: Issues for Counselors and Therapists. *The Journal for Specialists in Group Work*, 17(4):243-252.	This article examined the benefits of establishing a black support group on a predominately white campus.	The sample included 3 male and 3 female undergraduate minority students. These students were sophomores, juniors, or seniors from a variety of academic majors.	The black student support group's co-leaders were one male and one female. These leaders were generally known to potential group members through visible teaching and administrative roles on campus. The leaders used active, personal solicitation to recruit members. The authors believed these factors may have helped group members to overcome any stigmatism associated with seeking psychological help. The group met 13 times over the course of a semester.		■ Based on spontaneous comments, written feedback, and ratings collected after the last session, the authors determined that the participation had lead to the following: 1. Increase in cohesiveness; 2. Self-discovery; and 3. Greater independence from leader control. ■ The authors reached the following conclusions regarding future peer support groups: 1. Group leaders must have experience with minority students' problems of adjustment on a predominantly white campus, and must have knowledge of black culture and society. 2. Personal contact is the best way to recruit members, as opposed to other forms of advertising. 3. There are significant benefits to members belonging to an all-black group. 4. Confidentiality is crucial among such a small group of students. 5. Groups leaders must be prepared to participate in and mediate discussions about male-female relationships.

Table 1b. Nonacademic counseling (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Sanchez, A.R., and King, K. (1986). Mexican Americans' Use of Counseling Services: Cultural and Institutional Factors. *Journal of College Student Personnel*, 27(4): 344-348.	This study examined the use of counseling services by Mexican American and white students. In the year prior to this survey, Mexican American students accounted for less than 7 percent of the total student population served by counseling.	The sample included 121 Mexican American students and 163 white students at a 4-year state university in the western United States. Of the Mexican American students, 70 chose to participate in the study; of the white students, 103 participated in the study.	Counseling.	The participants received a questionnaire asking for general demographic information, sources of stress, sources of help available to them, counseling center characteristics, and counselor characteristics. This data was used to analyze the students' willingness to visit the counseling center.	■ The only significant difference between Mexican American students and white students was that Mexican American students were less willing to visit the counseling center. ■ Mexican-American men were the least likely to use the counseling center due to personal character and pride. ■ The greater the Mexican American student's commitment to the Mexican American culture, the more important it became for the counselor to share this ethnic background and to speak Spanish. ■ Based on factor analysis, whites were more likely to suffer from extrapsychic (societal or environmental) stress than Mexican American students. ■ Offering professional counseling services was more effective. ■ The authors could not identify the institutional factors that deterred the use of counseling services.

Table 1c. Mentoring

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Oestereicher, M.H. (1985). *Interactive Student Learning: An Interim Report on a Mentoring Project.* Revision of a paper presented at the Spring Conference on the National Council of Teachers of English, Houston, TX.	This article described the preliminary findings of an evaluation of the peer tutoring/mentoring program established at Brooklyn College. Previous research had indicated that peer mentoring simultaneously facilitates academic and social integration. The peer mentors served as intermediaries between the students and the professor and between the students and their academic goals.	The target group included 144 students enrolled in the Search for Education, Evaluation, and Knowledge (SEEK) program at Brooklyn College. SEEK participants are economically disadvantaged students admitted regardless of high school grades. Overall, 12 classes were selected for the study including developmental freshman courses (only SEEK students) and the Core curriculum courses (SEEK students and regularly admitted students). Six of the 12 classes received a peer mentor.	Six black females were selected as peer mentors. Each had recently completed the course to which they were assigned with an "A." Thus, they spoke the same "language" as the students while also serving as a model of success. Mentors received specialized training and were paid for their services. They were required to attend the mentored class at least once a week, to be available to the students for 5 hours per week, to assist with homework, and to serve as a role model.	The only outcomes measured in this preliminary report were student satisfaction with services and student study habits and attitudes.	■ An examination of study habits and attitudes revealed a deterioration for struggling SEEK students in difficult classes regardless of a tutor/mentor. Mentoring, however, may have reduced the level of deterioration slightly for students in the experimental group. ■ Of the students receiving mentoring, 95 percent would recommend the program and 93 percent expressed an interest in continuing to see their peer mentor following the completion of the course. ■ All the peer mentors said that they were planning service oriented careers and that the mentoring experience had an impact on that decision.

Table 1c. Mentoring (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Oestereicher, M.H. (1987). Effectiveness of Peer Tutor/Mentors for Disadvantaged Students at Brooklyn College: Preliminary Analyses. *Linkages: Perspectives from Special Programs*, 5(1):27-33.	This article described the impact of using peer tutoring/mentoring to improve academic performance and to increase the retention rates of disadvantaged students.	The target group included 144 students enrolled in the Search for Education, Elevation, and Knowledge (SEEK) program at Brooklyn College. SEEK participants are economically disadvantaged students admitted regardless of their grades. Overall, 12 classes meeting during the spring of 1985 were selected for the study, including developmental freshman classes and Core curriculum courses. A total of 66 SEEK (30 in Core courses/36 in Developmental Writing) students received tutoring/mentoring and 48 SEEK students (22 in Core courses/26 in Developmental Writing) formed the control group.	Six black females were selected as peer mentors. Each had recently completed the course to which they were assigned with an "A." Thus, they spoke the same "language" as the students while also serving as a model of success. Mentors received specialized training and were paid for their services. They were required to attend the mentored class at least once a week, to be available to the students for 5 hours per week, to assist with homework, and to serve as a role model.	The outcomes measured included the mentored-course grade, subsequent academic performance, and student study habits and attitudes as indicated by the Brown/Holtzman Survey of Study Habits and Attitudes.	■ The mentored students received higher grades in the mentored course than did students taking the same course but not receiving mentoring. ■ Among students enrolled in the Core classes, 23 mentored students and 18 students from the control group completed the fall 1985 semester. When these groups entered the peer mentoring study at the end of the fall 1984 semester, both had 1.90 GPAs. At the end of the fall 1985 semester, the mentored students had an average GPA of 1.71 and the (remaining) control group students had an average GPA of 1.54. ■ No significant differences in reenrollment were found between the students who received mentoring and those in the control group. The rates were 51 percent and 54 percent, respectively. It is possible that the retention rate for mentored students was slightly lower because some of these students were counseled to transfer to community colleges. ■ In an examination of attitudes and habits, the control group had better attitudes when it came to doing work, but the experimental group still had better grades. ■ Of the students who received tutoring/mentoring, 96 percent would recommend the mentoring program to others.

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Table Ic. Mentoring (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Steele, R. (1991). *Mentoring: An Effective Tool for Retention of Minorities* (ED 342 841)	Previous research had shown that mentoring is an effective tool in the recruitment and retention of minority students. The author defined mentoring as a developmental continuum and identifies four levels of mentoring functions. Institutional examples of current mentoring programs and concerns were also provided.				■ The four levels of mentoring described were as follows: Level 1: The mentor teaches techniques in a guided apprenticeship. At first, the mentor's responsibilities are to help the mentee perform their job better, expand knowledge, and learn about organizational survival. Level 2: The mentor provides counseling and personal support to the mentee. Level 3: The mentor uses his or her influence to intervene on behalf of the mentee, speaking for the mentee's skills and abilities. Level 4: The mentor recommends and sponsors mentee for positions, helping the mentee to move ahead in their career. Sponsoring represents the greatest investment and effort on the part of the mentor. ■ The author also cited the importance of black faculty members as mentors for black students. A literature review revealed, however, that many schools do not promote mentoring as part of the faculty role.

Table 1d. Study skills courses

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Frierson, H.T. (1984). *Just One Aspect of an Effective Support Program: Its Impact on Minority Students.* Paper presented at the Annual Meeting of the Association of American Medical Colleges, Chicago, IL.	This study examined test-taking intervention and its effects on the academic performance and retention of minority medical students. One goal of the intervention was to reduce the performance gap between minority and nonminorty students.	Four different groups of students were selected to participate in four different evaluation studies. The first group included 19 of 21 second year minority medical students. The second, third, and fourth groups included 3 of 13 second-year minority students, 19 of 29 third-year students (over an 8-year period), and 39 third-year students (over a 5-year period).	Each target group received a different intervention strategy (the strategy number corresponds with the group number), including: 1. The intervention program consisted of 15 hours of test-taking instruction and the establishment of learning teams during the first part of the semester. The teams met during the last part of the semester. Practice tests were used to reinforce test-taking skills and to help students assess their own content knowledge. 2. At the beginning of the first semester, second-year minority medical students participated in six one-hour intervention sessions for 6 weeks. 3. The intervention focused on test-taking techniques for retaking Part II of the National Boards. 4. Test-taking techniques were offered to a group of predominately minority students as supplemental reinforcement for preparing for the National Board Part I subtest retest.	The outcome measure used was the students' scores on the National Boards (medical examination).	■ The results from the first type of intervention showed no statistically significant differences between the minority and nonminority groups. The passing rate for the minority group, however, was 79 percent compared with 52 percent for minority students in the previous year. In addition, 81 percent of the 21 minority students taking the exam passed compared with 90 percent for the whole class. ■ The average test score for minority students participating in the second type of intervention was 444 compared with 364 for nonparticipants. This 80- point difference was significant. Also, the participant scores were considerably higher than scores received by minority students the previous year (368). ■ Test intervention for the third student group raised scores an average of 118 points compared with 72 points for nonparticipants. ■ Participants in the fourth intervention group produced a retest score of 64 percent compared with 58 percent for nonparticipants. Both sets of students had previously had the same initial test scores (52 percent).

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Table 1d. Study skills courses (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Polansky, J., Horan, J.J., and Hanish, C. (1993). Experimental Construct Validity of the Outcomes of Study Skills Training and Career Counseling as Treatments of the Retention of At-Risk Students. *Journal of Counseling and Development*, 71(5) 488-492.	This study invoked theoretically relevant counseling interventions to reduce student attrition rates. It examined the separate and combined effects of study skills training and career counseling on retention and student achievement.	The university contacted 460 students considered at risk of dropping out based on the following criteria: ■ Freshman status; ■ Undeclared major field of study; and ■ Academically deficient (i.e., high school GPA below 2.0, low standardized test scores, and missing specific high school courses). The first 36 of the 460 students to volunteer to participate were included in the study. Twenty students participated during the spring of their freshman year. The remaining students began treatment at the end of their first semester during their second year.	The sample was divided into four groups: ■ Study skills training only: The course focused on time management, goal setting, learning styles, and relaxation. The group met two times a week for 90-minute sessions for 2 weeks. ■ Career counseling training only: The group met twice a week for ninety minute sessions for two weeks. ■ Combined treatment: This group received both study skills training and career counseling. It met twice a week for 90-minute sessions over a 3-week period. The sessions alternated between study skills training and career counseling. ■ Control group: This group did not receive either form of treatment.	The relevant outcomes measured were GPA and retention rates.	■ Only study skills training (without career counseling) had a significant impact on retention rates when compared with the control group. All participants in the study skills group remained enrolled for two consecutive semesters following treatment compared with 33 percent of the control group. The retention rate for students receiving career counseling only was 78 percent. Although, this result was not statistically significant, it was in a positive direction. ■ None of the treatments had a significant impact on GPA but students in the study skills group had a mean GPA of 2.48 compared with under 2.0 for all the other groups. ■ Student self-reports revealed that students receiving the combined treatments reported improved study habits compared with students receiving only study skills training. ■ Although career counseling failed to have any significant results on GPA or retention, five of the nine students receiving this intervention declared a major compared with two students from the control group and three students from each of the other groups.

Table 1d. Study skills courses (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Scott, K.J., and Robbins, S.B. (1985). Goal Instability: Implications for Academic Performance Among Students in Learning Skills Courses. *Journal of College Student Development*, 26(2):129-133.	This study applied Kohut's (1971, 1977) theory of personality development to the academic performance and achievement motivation of students participating in learning skills courses. Specifically, this study addressed two issues, including: ■ Whether goal instability is related to the study habits of college students, to their ability to manage their behavior, and to their performance? ■ Are there differences in performance between groups with goal instability (high-risk group) and other students participating in learning skills classes?	The sample included 72 undergraduates enrolled in four section of learning skills classes taught at a large western university. The majority of these students were freshman (n=43). The final sample size was 60 as final course grades were unavailable for 12 students.	Learning skills courses.	The three outcome measures used, included: ■ Goal Instability Scale: Assesses the student's goal directedness and predicts changes in career decisions after completing career and life planning classes. ■ Personal Competency Inventory: Measures the student's management of his or her own behavior and describes nine abilities, including the ability to deal with feelings, to cope with failure, and to monitor behaviors. ■ Study Skills Questionnaire: This test examines students' time management skills, listening and notetaking skills, textbook reading abilities, and test preparation abilities.	■ Goal instability was more strongly associated with course and overall GPA than with either the personal competency or study skills scores. ■ The results suggested that disorders of the self may be associated with academic success. They also indicate that some students are unable to successfully take advantage of learning skills courses. ■ The authors recommended referring students with high goal instability and disturbances of self to counselors.
Thompson, M.E. (1976). *Helping the High Risk Student in Higher Education. A Description of Research Studies Reporting Success Utilizing Study Skills/ Remedial Programs.* U.S. Department of Health, Education, and Welfare, National Institute of Education.	This article reviewed 13 studies on treatments designed to improve high-risk students' achievement in higher education. Each study was conducted before 1975. The topics covered include pre-college treatments, such as Upward Bound, as well as treatments received during college, such as a study skills programs.				Findings from the precollege treatments suggested that these programs can have positive effects on postsecondary education including increased enrollment and persistence rates. Findings from postsecondary treatments suggested that study skills programs can improve the GPAs of high-risk students.

Table 1e. Developmental courses

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Call, P.E. (1982). Screening and Placing Basic Skills Students. *Improving College and University Teaching*, 30(4):184-187.	The study examined basic skills programs (BSPs) enrollment policies at 24 West Virginia universities. Within these schools, 74 percent of math BSPs were mandatory, 73 percent of reading and writing BSPs, 71 percent of writing BSPs, and 36 percent of reading BSPs. Previous studies had shown that 37 percent of incoming freshman were deficient in at least one of these skills, but only 10 to 12 percent were being treated for deficiencies.	West Virginia BSP coordinators were asked for their opinions about whether BSPs should be mandatory and for recommendations concerning program enrollment improvements.	Basic skills/developmental education courses in reading, writing, and mathematics.		■ Most program coordinators recommended mandatory over voluntary enrollment. ■ Recommendations for basic skills programs based on the study results included the following: 1. Set up a system to evaluate, advise, and register students for basic skills instruction (a model of the evaluation and placement process is included). 2. Require students to enroll in basic skills courses if they demonstrate deficiencies in a particular area. This requirement, however, should be waived when deemed necessary by project staff. 3. Students with deficiencies in certain areas should not enroll in regular classes without completing basic skills prerequisites. 4. Basic skills should be available to all other students on a voluntary basis.

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Table 1e. Developmental courses (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Hobbs, R.L. (1989). *Academic and Developmental Services End of Year Status Report 1988-89.* Memphis, TN: Shelby State Community College.	This report examined the Academic and Developmental Services (ADS) program at Shelby State Community College between the 1985-86 and 1988-89 academic years, focusing on those participants enrolled during the fall of 1987 and the fall of 1988.	The study examined four cohorts of ADS participants and non-participants: those entering in the fall of 1985, the fall of 1986, the fall of 1987, and the fall of 1988. A total of 2,364 participants and 352 nonparticipants were examined. Participants were first-time freshmen who failed to meet basic competency levels of placement tests.	Assessment and placement into remedial and developmental courses.	The outcomes measured included enrollment in remedial and developmental courses, term-to-term retention rates, grade distribution, cumulative GPA, and grades earned in remedial and developmental courses. Comparisons between participants and nonparticipants were limited to the retention analysis.	■ Over 60 percent of first-time freshmen entering the college in the fall of 1988 were placed in remedial and developmental courses. ■ For the fall 1985 and fall 1986 cohorts, retention rates from the fall to winter term were significantly higher for participants than non-participants. After the winter term, however, retention rates were comparable. ■ For the fall 1987 cohort, term-to-term retention rates were much higher for participants than nonparticipants. ■ Initial retention rates for the fall 1988 cohort were substantially higher than those of nonparticipants. ■ Between 52 to 59 percent of participants passed their remedial and developmental courses.

Table 1e. Developmental courses (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Newton, F.B. (1990). Academic Support Seminars: A Program to Assist Students Experiencing Academic Difficulty. *Journal of College Student Development*, 31:183-186.	This study examined the impact of a support seminar course offered at Kansas State University as a cooperative effort between the Counseling Service and College of Architecture and Design.	The sample included 114 students over a six-semester period. Students were placed on academic probation the semester prior to their participation in the Support Seminar.	The 10-week Support Seminars were taught by graduate students, and provided participants with one hour credit. Each seminar focused on the following six dimensions: ▪ Involvement--student attendance and participation were required to receive credit. ▪ Personal issues--students were encouraged to overcome self-defeating attitudes. ▪ Peer influence--students considered their ability to change their environment. ▪ Problem-solving--students set weekly goals for themselves through personal change contracts. ▪ Behavior change--students kept a log of daily activities and used contracts to set goals. ▪ Skill-building--how-to strategies for reading, test-taking, and studying were presented.	The outcomes measured included probation rates, persistence rates withdrawal rates, graduate rates, and the frequency with which students changed their majors.	Program participants were compared to a similar group (i.e., similarity in class standing, major, probation status, sex, and overall GPA) of nonparticipants. The comparison revealed that participants were removed from probation at a 36 percent higher rate, persisted at a 52 percent higher rate, withdrew at less than a 51 percent rate, graduated at a 33 percent higher rate, and changed majors at a less than 37 percent rate.

Table 1e. Developmental courses (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Young, E.D. (1986). *Psychoeducational Studies: A Freshman Guided Studies Seminar* (ED 267 714).	This study examined a freshman guided studies program. The model considered was a variation of the South Carolina "University 100" program combined with the Deliberate Psychological Education (DPE) methodology. The basic premise of DPE is that students learn a subject most effectively by applying and practicing learned skills. Structurally, DPE is best utilized in a seminar-type learning experience. The three primary goals of the freshman guided studies program were to: ■ Provide students with a realistic and comprehensive overview of higher education; ■ Enhance learning and study skills development; and ■ Aid in personal and social adjustment. In turn, successfully accomplishing these goals should lead to increased persistence and retention rates. The author did not consider this a remedial education program but, rather, a crash course on how to succeed in college that would be appropriate and beneficial to any college student.	The target group included 13 first-year minority students who were enrolled in the Educational Opportunities Program (EOP) at a 2-year institution during the 1985-86 academic year. A total of 51 minority students (including program participants) enrolled in the institution that fall.	The course objectives for the seminar course in psychological education included the development of skills in research, writing, and learning; increasing comprehension of higher education; and conducting activities to promote adjustment to the college environment. The course content was based on deliberate psychological education theory, meaning students learn by doing. The semester-long class met three times a week for an hour, with two exams and a 4-5 page research paper. Course content was divided into three learning sets: (1) personal adjustment to college; (2) learning and study skills development, and (3) human development and group experiences. Skill-building activities were followed by structure experiences that corresponded to learning objectives. Students were required to learn vocabulary associated with each learning set, and to keep journals of their first-year experiences.	The outcomes measured were GPA (mean and median) and the average number of earned credits.	■ At the end of the first semester, the mean and median GPAs for program participants were 2.58 and 2.63, respectively. In addition, these students earned an average of 13 credits during the first semester. For the overall group of first-year minority students, mean GPA was 1.99 and median GPA was 2.20. The difference in GPAs between the program participants and the total class were significantly significant. In addition, the average number of credits earned per semester for the 51 minority students was 12. ■ Course evaluations revealed that participants supported the idea of mandatory attendance, and felt that the program had contributed to their learning, growth, and development.

Table 1f. Course tutoring

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Condravy, J.C. (1990). *Learning Together: An Interactive Approach to Tutor Training.* Washington, DC: American Association of State Colleges and Universities.	This study described the peer tutor training program offered at Slippery Rock University in Pennsylvania. The program was implemented in January 1983. Approximately 25 to 30 students are trained as tutors each semester. Potential tutors participated in a 5-hour orientation session and in workshops focusing on communication skills, study skills and tutoring programs.	The peer tutors served both regularly admitted as well as academically underprepared students.	Peer tutoring.	The outcome measures examined were tutor satisfaction with the training program and student satisfaction with their tutoring experiences.	■ In their evaluations of the training program, peer tutors felt that the overall training as well as each training component was useful. ■ Over a 10-year period, the use of the tutoring center has increased 127 percent. ■ The percentage of students requesting help during fall semester who returned to ask for help during spring semester ranged from 46 to 49 percent. ■ Every student that received tutoring assistance and responded to the survey said that he or she would use the tutoring center again.
Hartman, H.J. (1990). Factors Affecting the Tutoring Process. *Journal of Developmental Education,* 14(2):2-4,6.	The author defined the purpose of tutoring as facilitating academic gain and developing self-directed or independent learners. This article focused on theoretical tutoring issues.				Tutoring was found to be a cost-effective teaching method, but required that attention be given to theoretical issues. The author outlined three intellectual components of academic performance: metacognition, cognition, and knowledge requisition. Academic performance also included the following emotional components: affective factors and environmental factors.

Table 1f. Course tutoring (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
House, J.D., and Wholt, V. (1991). Effect of Tutoring on Voluntary School Withdrawal of Academically Underprepared Minority Students. *Journal of School Psychology*, 29(2):135-142.	This study investigated the effects of tutoring on the persistence of academically unprepared minority students.	The target group included 679 minority freshman who enrolled in a large, midwestern university during the 1987-88 or 1988-89 academic years. Of these students, 468 were black, 107 were Latino, and 104 were Asian American. Each entered the university through a special program for academically unprepared students. The criteria for this program specified that the participants must be first generation college students from low income families that attended a large inner city high school and lacked college preparation classes. Participation in the tutoring program was voluntary: 282 students received tutoring and 397 did not. Overall, there were no significant differences in the high school performance of participants compared with nonparticipants. When examined by race/ethnicity, the only significant differences in participants were for Latino students based on their high school class rank. All students (participants and nonparticipants) took the same courses during the study (four required courses and four electives).	The peer tutoring was administered by juniors, seniors, and graduate students who were competent in a particular subject area. Each tutor received 11 hours of training that stressed study skills, test-taking skills, reducing math anxiety, reducing test taking anxiety, and communication skills.	The outcomes measured were persistence rates for the whole group of participants and comparisons made on the basis of race/ethnicity.	▪ There were significant differences in the overall persistence rates of the participants (76.6 percent) compared with the nonparticipants (68.3 percent). ▪ By race/ethnicity, significant persistence rate differences were found among Latino participants (71.1 percent) compared with Latino nonparticipants (54.8 percent) and black participants (76.6 percent) compared with black nonparticipants (68.3 percent). No statistically significant results were found for Asian American participants compared with Asian American nonparticipants. ▪ The authors noted that peer tutoring is a cost-effective strategy.

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Table 1f. Course tutoring (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Maxwell, M. (1990). Does Tutoring Help? A Look at the Literature. *Review of Research in Developmental Education*, 7(4):1-5.	The author reviewed existing literature on tutoring, focusing on its impact on academic achievement and retention. Peer tutoring as well as supplemental instruction (SI) were also addressed.				The following conclusions were offered, including: ▪ It is difficult to show the successful impact of individual tutoring--it may have some positive effect on persistence but little effect on GPA. ▪ Students who earned higher grades after tutoring tended to be better prepared, have higher ability, and/or more experience in college. ▪ Underprepared students who received tutoring remained in school longer than underprepared students who did not. ▪ Other instructional methods involving peers, such as supplemental instruction, may be more effective then tutoring.
Okawa, G.Y. (1988). *Dimensions of Diversity: Peer Tutoring in a Multi-Cultural Setting*. Paper presented at the Annual Meeting of the Conference Composition and Communication, St. Louis, MO.	Minority students often experience cultural dissonance in the classroom. Many of these students are unfamiliar with the language and culture of academia. This dissonance is perhaps most apparent when a minority student is confronted with a writing assignment. This article discussed the writing center as the focal point for peer tutoring of minority students.				The following conclusions were offered, including: ▪ The writing center must recruit a diverse group of tutors. ▪ Tutors must be trained to teach about writing, but also be sensitive to the cultural and learning differences of underprepared students. ▪ The tutoring experience benefits both the tutors and the students being tutored.

Table II. Course tutoring (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Vincent, V.C. (1983). *Impact of a College Learning Assistance Center on the Achievement and Retention of Disadvantaged Students.* ERIC ED 283 438	This 2-year evaluation measured the impact of a Learning Assistance Center (LAC) on the achievement and retention of disadvantaged students at a predominantly Hispanic institution. Three questions were considered including: ■ Are there GPA differences between LAC participants and similar non-LAC participants? ■ Are there differences in the number and percentage of passing and failing grades received by LAC participants and non-LAC participants? ■ To what extent do LAC services contribute to retention?	The entire student body was included in this study to avoid difficulties associated with validating sampling techniques and small sample sizes. Tutoring, however, was only offered to freshmen and sophomores in English, math, biology, chemistry, and social studies. Participation was often based on recommendations made by academic counselors during freshman orientation or based on faculty referrals, but any student could choose to participate in tutoring. LAC students were compared with non-LAC students on the basis of 10 variables (e.g., ACT scores, ethnicity, family income, and so forth) to create a matching non-LAC group. Two types of matching groups were formed, including: ■ A non-LAC matching population for each of the four semesters of the evaluation. One-to-one matches were made based on ACT scores, ethnicity, and student classification. This group was established to evaluate overall and semester GPAs. ■ A non-LAC matching population was developed for each course each semester based on student ACT scores, ethnicity, and student classification. Researchers took into accolunt that a single LAC student may be participating in multiple course and, therefore, took precautions to ensure that only one match was made. This group was established to compare grade distribution percentages.	LACs generally offer counseling, tutoring, academic and career advisement, and other support services. This study concentrated on tutoring services offered on an individual and small group basis. Tutoring was only offered to freshmen and sophomores in English, math, biology, chemistry, and social studies courses.	The outcome measures included semester and cumulative GPAs, percentage of passing and failing grades, and retention rates.	■ No significant differences were found between LAC and non-LAC students in terms of semester or cumulative GPAs. ■ The LAC students had 5.6 percent less failures that their non-LAC counterparts. Other grade percentages also favored LAC students slightly. ■ LAC students had a 15.6 percent higher retention rate than non-LAC students. ■ Although LAC students received higher grades in the tutored courses, this did not lead to a significant difference in their semester or cumulative GPAs. This may be an indication that tutoring improves individual course grades but that the skills acquired are not transferrable.

Table 1g. Supplemental instruction

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Congos, D.H., and Schoeps, N. (1993). Does Supplemental Instruction Really Work and What is it Anyway? *Studies in Higher Education*, 18(2):165-172.	The University of North Carolina started a Supplemental Instruction (SI) program in 1985 focused on high-risk classes rather than high-risk students. This study examined the impact of SI on student participants during the 1988-89 academic year.	The sample included students who attended five or more SI sessions during one semester.	The SI program was proactive; providing students with help before they encounter serious problems. The three main modes of instruction used included the following: 1. Teaching students how to effectively take notes; 2. Practicing the formulation of possible test questions and answers; and 3. Reviewing student test answers to clarify mistakes and improve understanding. SI instructors were students who had successfully completed the course.	The outcome measure used was the students' course grade.	Students who participated in five or more SI sessions had higher course grades than non-participants.

Table 1g. Supplemental instruction (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Fullilove, R.E., and Treisman, P.U. (199). Mathematics Achievement Among African American Undergraduates at the University of California, Berkeley: An Evaluation of the Mathematics Workshop Program. *Journal of Negro Education*, 59(3), pp. 463-478. Related articles: 1) Treisman, P.U. (1983). *Improving the Performance of Minority Students in College-Level Mathematics*. Austin, TX: University of Texas. 2) Garland, M. (1993). The Mathematics Workshop Model: An Interview with Uri Treisman. *Journal of Developmental Education*, 16(3). 3) Treisman, U. (1992). Studying Students Studying Calculus: A Look at the Lives of Minority Mathematics Students in College. *The College Mathematics*	The study examined the Mathematics Workshop Program (MWP) at the University of California-Berkeley. MWP participants were first-year students of all races that expressed an interest in pursuing a career requiring math. Participation in the program was voluntary. Over 80 percent of participants were African American or Hispanic.	The study examined the performance of 646 African American freshmen enrolled in Math 1A (first year calculus). Of the 646 students, 231 were MWP participants and 284 were non-MWP participants between 1978 and 1984. The remaining 131 students were African American students who took Math 1A between 1973 and 1977, prior to the existence of MWP.	▪ MWP organized participants into study groups of five to seven students to work on "unusually difficult" calculus problems twice a week for approximately 2 hours each session. ▪ The sessions were supervised by a graduate student leader. Students were encouraged to work together and critique each other's work. ▪ During each session, participants worked on problems that were more than a review of course work, they also included problems that "frequently appear on exams but rarely on homework assignments," problems that help students to learn "computational tricks," and problems to "deepen the students' understanding of and facility with mathematical language."	▪ The study examined the percentage of participants earning honors level grades in Math 1A (B- or better), the percentage earning failing grades (D+ or lower), and persistence rates of participants who entered during the 1978-79 school year. ▪ Participant performance was compared to the performance of nonparticipants over two time periods, 1978-82 and 1983-84. Additionally, participant performance was compared to the performance of African Americans prior to the existence of MWP. ▪ Performance was cross-classified by admission status, participation in the educational opportunity program (implying educational or financial disadvantagement), engineering and nonengineering status, math SAT scores, and gender.	▪ Across all categories and time periods examined, a larger percentage of participants earned grades of B- or better than nonparticipants. ▪ Participant performance was substantially better than that of African Americans prior to the existence of MWP. ▪ The percentage of participants receiving a failing grade in Math 1A was substantially smaller than that of non-participants. For example, only 3 percent of participants between 1978-82 received a failing grade compared to 40 percent of comparable non-participants. The participant failure rate was also substantially smaller than that of African Americans prior to the program (3 percent versus 33 percent). ▪ Across all categories, participants who entered in the 1978-79 academic year had higher persistence rates than comparable non-participants. ▪ By the fall of 1985, 65 percent of participants were either still enrolled or had graduated compared to 41 percent of nonparticipants. ▪ The persistence rate of participants was considerably higher than that of African Americans prior to the existence of MWP (65 percent versus 39 percent).

Table 1g. Supplemental instruction (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Hawthorne, J., and Hawthorne, J.W. (1987). *Separating the Wheat from the Chaff: Finding the Unique Effect of Supplemental Course Instruction.* Paper presented at the Annual Conference of the National Association for Developmental Education.	This study examined the impact of the Supplemental Course Instruction (SCI) program offered by the University of Missouri-Kansas City on student achievement and retention.	The sample included 461 students enrolled in four courses during the fall 1985 semester. Only 253 students, however, had complete data profiles for use in structural modeling.	SCI leaders were undergraduates who had previously completed the course with an "A." They attended classes to set a good study skills example in the classroom. In addition, they organized two weekly, hour-long study sessions. These sessions were used to review course material, discuss possible test material, create a mock exam, and so forth.	After controlling for marital status, age, high school rank, and ACT scores, researchers examined the impact of the SCI program on courses grades, semester GPA, and reenrollment. Structural equation modeling was then used as a means of describing variable relationships. It was able to control for the problems of voluntary participation (i.e., student may be more motivated academically if participating in SCI); the timing of the SCI session (i.e., may be inconvenient for commuters); and open admissions. In addition, students received two questionnaires. The first survey requested background information and the second questionnaire asked for the number of times they had participated in SCI sessions.	The following results were found using structural modeling: ■ SCI was found to have significant, positive, direct effects on course grades (regardless of student "risk" level), on semester GPAs, and on reenrollment. ■ It was also found to have indirect effects on semester GPAs and reenrollment through course grades. These findings had several major implications, including: ■ Since participants also had higher semester grades, it may be an indication that the skills acquired through SCI are transferrable. ■ The positive impact on reenrollment may be an indication that both social and academic integration occur through the SCI program. Several related observations were made by the authors, including: ■ The SCI program served students at all academic levels. Therefore, it did not have the stigmatism associated with "remedial" education. ■ The SCI program is cost efficient and aids in identifying high risk freshman.

Table 1h. Multiple service projects

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Abrams, H.G., and Jernigan, L.P. (1984). Academic Support Services and the Success of High-Risk College Students. *American Educational Research Journal*, 21(2):261-274.	This study examined high-risk students' use of support services and training in reading and vocabulary, and its impact on academic achievement, course taking, and persistence. Four hypotheses were tested, including: ■ The number of hours spent in the reading and study skills program as well as the number of tutor contacts would significantly correlate with GPA and retention; ■ A significant decrease in the use of academic support services would occur from fall to winter semester; ■ First-semester GPA would significantly correlate with reading test scores; and ■ Participation in a structured reading program would result in measurable and significant increases in reading vocabulary, comprehension, and speed.	The target group included 229 freshmen who entered Eastern Michigan University's Promote Academic Survival and Success (PASS) program during the fall 1981 semester. Ten of these students failed to complete the fall semester so the sample was reduced to 219 freshmen. Of these students, 30 percent were black and all students were 18 or 19 years old. The PASS students had either high test scores and low high school GPAs or vice versa. The University academic performance prediction table projected that their mean GPA would be 1.83.	The PASS program provided advising, academic support services, and peer tutoring for provisionally admitted freshmen. These students remained in the PASS program for one year and then joined the general student body. During their first semester, the PASS students enrolled in specific courses (i.e., English, math or science, history or political science, and a general university-studies course) where the teacher-to-student ratio was lower than corresponding subjects in the same areas. PASS students were required to participate in an academic support services program that included instruction in study skills, reading, and English. Stress management and academic counseling were also included in the support services program. In addition, these students were eligible for free peer tutoring.	The outcomes measured included GPA, reading test scores, and retention rates.	An examination of the data revealed the following results: ■ An additional 29 students withdrew after the fall semester (only 9 had a GPA of 2.0 or higher). Of the 190 students that completed winter semester, 41 percent failed (GPA under 2.0). Overall, 43 percent of the PASS students failed to earn a 2.0 average GPA during their first year. ■ The difference in the number of hours spent in the reading and study skills program was statistically significant when the group was divided between those that passed the fall semester and those that did not. The difference in hours approached significance when the group was divided between those that passed the winter semester and those that did not. ■ The number of tutor contacts also approached significance when the group was divided into those passing fall semester and those failing fall semester. The students with higher fall GPAs saw the tutors an average of 2.26 times during fall semester compared with 1.81 times for students who failed fall semester.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Abrams (continued)					■ The impact of fall tutor contacts on retention also approached significance. Of the students returning after fall semester, 65 percent saw tutors during the fall semester compared with 40 percent of nonreturning students. ■ Returning winter semester students used tutors less frequently that during the fall. The average number of fall tutor contacts was 2.04 compared with 1.44 winter tutor contacts. ■ Reading scores did not correlate significantly with fall GPA, winter GPA, or cumulative GPA. ■ Predictions of students' GPAs based on entrance test scores and high school GPA did not correlate significantly with college GPAs. This could be an indication that the prediction formula is not reliable. ■ Participation in the reading and study skills program resulted in significant increases in reading test scores over the course of fall semester. Based on these results, the authors offered the following conclusions: ■ Traditional predictors of academic success are not accurate determinants of academic achievement for high-risk students.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Abrams (continued)					■ High-risk students' willingness to seek assistance from either reading teachers or tutors is the most accurate predictor of their first semester GPA. ■ High-risk students should only be admitted on the condition that they participate in support services due to the potential benefits of participation and on account of the likelihood that they will not voluntarily seek these services.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Adelman, C. (1984). *Starting with Students: Promising Approaches in American Higher Education.* Prepared from materials submitted to the National Commission on Excellence in Education. Presented to The Study Group on the Conditions of Excellence in American Higher Education.	This report profiled promising educational approaches "from which students later achieve uncommon success" in higher education. The report included 120 program profiles prepared by program directors. These programs targeted high achievers, average students, or academically disadvantaged students at community colleges and universities.	The report categorizes profiled into the following 11 areas: ■ School-college partnerships; ■ Programs for entering freshmen to help them adjust to academic demands and their new environment; ■ Retention programs; ■ Alternative methods for students to achieve the objectives of general/ liberal education; ■ Programs reconciling career goals and a liberal arts education; ■ Programs to increase scientific and technological literacy for non-science and non-engineering students; ■ Programs developing various language skills; ■ Programs for gifted postsecondary students; ■ Programs with variations on traditional instruction time; ■ College-employer partnerships; and ■ Programs in this successful assessment components.	These programs targeted high achievers, average students, or academically disadvantaged students at community colleges, colleges, and universities.		
Amerman, M. (1991). *Pueblo Community College. Accountability Progress Report. Academic Year 1990-91.* Pueblo, CO: Pueblo Community College.	This study examined assessment data and data collection plans as well as overall outcomes at Pueblo Community College.		Services offered included a 4-week summer preparation session, a learning center, a counseling center, an assessment center, and supplemental services.	Outcome measures included the percentage of students that get a license in their field, growth of enrollment in specific programs, finding from an alumni/student satisfaction survey, and overall retention rates.	

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Baylor, T.K. (1982). *Equal Education Opportunity Program Clientele: Characteristic, Needs, and Interest. Occasional Paper No. 1.* Mansfield State College, Pennsylvania.	This 4-year study provided a general overview of student participation in the Equal Education Opportunity Program (EEOP) at Mansfield State College in Pennsylvania.	The target group included 521 students enrolled in Mansfield State College's EEOP program during the 1978-82 academic years.	Multiple services were available to students including: ▪ Student orientation; ▪ Academic counseling; ▪ Personal counseling; ▪ Career counseling; ▪ Pre-college experiences; ▪ Financial aid counseling; ▪ Study skills/reading assistance; ▪ English tutoring; ▪ Math tutoring; ▪ Science tutoring; ▪ Foreign language tutoring; and ▪ A miscellaneous program composed of speech, geology, sociology, anthropology, philosophy, accounting, and psychology.	The only outcome measure considered was retention rates.	Program participants had a 65 percent retention rate.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Burris, B.M. (1990). *Academic Enrichment Project for Disadvantaged Students.* Washington, D.C.: American Association of State Colleges and Universities.	This study examined the success of the Academic Enrichment Program established in the College of Nursing at Chicago State University in 1984. The impetus for establishing this program was founded in the results of a 1983-84 examination of the student population that identified a high attrition rate, difficulty in completing the nursing program in four years, and fluctuating pass rates of graduates on the initial NCLEX-RN (nursing examination). The program objectives included the following: ■ Provide at-risk students with an academic support program; ■ Provide a training program for faculty to facilitate effective teaching of at-risk students; and ■ Establish academic support for at-risk students through peer tutoring.	Prior to entering the College of Nursing, all students were given several pre-admission tests to assesses their "risk status." Students who were identified as "at-risk" were immediately assigned to the Academic Enrichment Program. All students, regardless of risk status, were encouraged to participate, thus helping to eliminate any negative stigmatism attached to the program. Diagnostic tests were also administered to sophomores to identify deficiencies in various study skills areas. Students with deficiencies were assigned to remediation sessions. Program implementation, using funding provided by the Department of Health and Human Services, with students began during the fall 1986 semester. The majority of the program participants were black females between the ages of 20 and 52.	Student academic support programs included remediation sessions, math enrichment activities, and student workshops focusing on study skills, test taking skills, and pertinent nursing clinical topics. Nursing faculty members received training in reading comprehension, diagnosing students' academic deficiencies, and utilizing remediation strategies according to the students' identified learning needs. Thus, at-risk students received assistance tailored to the nursing curriculum from knowledgeable instructors. In addition, a peer tutoring network was established to assist students with individual needs.	The outcomes measured included performance on the NLN Comprehensive Achievement Test, NCLEX-RN pass rates, attrition rates, and course performance.	■ The at-risk students scored similarly to the nonrisk students on the NLN comprehensive test and the NCLEX-RN, despite starting out almost three levels lower in reading comprehension. ■ The percent of at-risk students passing the NLN comprehensive exam was higher than that of nonrisk students. ■ Except for the July 1987 test, the CSU graduates have equalled or surpassed the state and national NCLEX-RN pass rates since the initial academic enrichment pilot project in 1984-85. ■ At-risk students performed similarly to nonrisk students in terms of nursing course success. ■ The total annual attrition rate decreased from 45 percent to 13 percent (June, 1989) since the initial academic enrichment project pilot.

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Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Clewell, B.C., and Ficklen, M.S. (1986). *Improving Minority Retention in Higher Education: A Search for Effective Institutional Practices.* Princeton, NJ: Educational Testing Service.	The study examined successful minority retention programs at four predominantly white 4-year institutions.	■ Boston College: All minority students could participate in the general academic and personal support services. The 6-week summer residential program, however, was reserved for 40-50 entering high-risk minority students who did not meet the normal admissions criteria but show potential for success. ■ California State-Fresno: CORE-SAA worked with regularly admitted minority students. EOP worked with specially admitted students: low-income students, a high school GPA of at least 2.0, California residency, eight semesters of college-prep English and four semesters of college-prep math completed, and whose parents did not earn a college degree. EOP serves 1,050 students. ■ Purdue University: Precollege services targeted high achieving minority high school students. College-level services target minority engineering students. ■ UNC-Greensboro: Special Services program targeted those students who did not meet regular admissions criteria and were first-generation college students, economically or educationally disadvantaged, and/or physically handicapped. Approximately 120 students were admitted each year through Special Services and the majority are black. The Student Retention program targeted minority and nonminority students not admitted through Special Services. Nearly 70	■ Boston College: Academic and personal support services and a 6-week summer residential program. ■ California State University-Fresno: The College Outreach Retention and Enhancement-Student Affirmative Action (CORE-SAA) program recruits minority students, provided peer counseling, tutoring, and faculty awareness workshops on advising minority students. The Educational Opportunity Program (EOP) provided career counseling, personal counseling, and tutoring. ■ Purdue University: Minority Engineering Programs (MEP) provided precollege and college-level support activities. Precollege activities included summer workshops for high school students, presentations on engineering and opportunities at Purdue, special luncheons, workshops for students admitted to Purdue, grants, and preparation programs. College activities included guidance sessions, orientation, employment opportunities, and career information. ■ The University of North Carolina (UNC)-Greensboro: The Special Services program offered		Comparing the four universities, the article identifies several common characteristics of successful retention programs: the presence of a stated policy, a high level of institutional commitment; a substantial degree of institutionalization; comprehensiveness of services; dedicated staff; systematic collection of data, monitoring and followup; strong faculty support; and nonstigmatization of participants. ■ The article also outlined a model for developing effective minority retention programs. 1. Policy decision to enhance minority enrollment and retention. 2. The policy is formulated using a needs assessment and the development of a database to examine minority enrollment and retention rates. 3. A policy statement is then outlined with specific goals or targets. 4. Program development and implementation occur. The authors suggested that monitoring and evaluation should be a continual effort throughout the development of the program.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Clewell, B.C., and Ficklen, M.S. (continued)		percent of the participants, however, were minority students.	one-on-one advising, tutoring, counseling, math instruction, and study skills. The Student Retention program offered workshops on time management and test-taking, identification of academic difficulties, academic advising, and developing study skills.		

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Cohen,A.R., Lombardi, J., and Brawer, F.B. (1988). *An Assessment of Urban Community Colleges Transfer Opportunities Program. The Ford Foundation's Second Stage Transfer Opportunity Awards. Final Report.* Los Angeles, CA: Center for the Study of Community Colleges.	This study presented findings from the second year of the Urban Community Colleges Transfer Opportunities Program (UCCTOP), funded by the Ford Foundation. The study examined UCCTOP funded activities at five community colleges designed to promote transfer of minority community college students to 4-year institutions. The second year grant period was from 1985 to 1987.	UCCTOP funded services were to focus on minority students at community colleges. At several schools, however, some of the services were designed to promote transfer for all students.	■ Cuyahoga Community College created a Center for Articulation and Transfer to encourage high school students to attend the college and to increase transfer rates by strengthening transfer agreements with Ohio's traditionally black colleges. ■ LaGuardia Community College produced a Transfer Information Guide to inform students about courses to take for transfer purposes and implemented a Career Development course, a transfer seminar, a college transfer fair, and a summer institute with Vassar College. ■ Miami-Dade Community College used the funds to support counselor visits to high schools to encourage attendance, coordinated student visits to universities, and on-campus advising. ■ Community College of Philadelphia (CCP) conducted faculty workshops on writing development across the curriculum and developed interdisciplinary courses for transfer students. ■ South Mountain Community College administered college orientation, a mentor program, and visits to universities.	The five colleges were asked to provide data on the following: ■ 5-year history on AA recipients by gender and ethnicity; ■ Number of terms students were enrolled at the college; ■ Number of students entering with intent to transfer by gender and ethnicity; ■ Number of students transferring to a 4-year school with or without receiving a degree by gender and ethnicity; ■ Number of students receiving a BA for past 5 years by gender and ethnicity, ■ Number of students obtaining a BA who had previously earned AA degrees; ■ Number of students still enrolled at a 4-year school; ■ Number of students participating in UCCTOP activities, names of BA-granting institutions where most of college's transfers attend, and types of information regularly received about transfers. The 5-year data refer to the 1981-82 to 1985-86 academic years.	Findings were limited due to poor data quality and could not be used to measure program effectiveness. In general, it is difficult to obtain data on transfer students and to isolate the effects of transferring services. ■ At Miami-Dade: Enrollment in academic transfer programs declined since 1981-82, total number of students transferring also declined; fewer students earned AA degrees but instead more students earned AS degrees (the transfer rate for AS recipients is lower than that for AA recipients). ■ At South Mountain: Over the 5-year period, the number of students declaring transfer intent increased; of the 334 students who participated in UCCTOP activities, 43 percent had transferred by fall 1987. ■ At CCP: Enrollment in academic transfer programs remained stable over the 5-year period, the total number transferring declined, the number of whites with intent to transfer increased, and the number of transfers that earned non-AA degrees increased. ■ Cuyahoga College: The number of blacks, whites, and other minorities intending to transfer decreased over the 5 years, the number of entering students with intent to transfer declined, and the number of students who transferred over the 5 years declined.

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Table 1h. Multiple service projects (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Cohen, A.R., Lombardi, J., and Brawer, F.B. (1988) continued					■ LaGuardia: There was no consistent pattern in the number of students entering with intent to transfer over the years.
Daniels, M. (1992). *A Descriptive Profile of an Instructional Plan for Students "At Risk" of Academic Failure*. Paper presented at the Annual Meeting of the Speech Communication Association, Chicago, IL: October 29-November 1, 1992.	The Society of Unlimited Learning (SOUL) was designed to ease the transition of disadvantaged black students into the college environment. Through interviews with eight former students, this study examined what was successful and unsuccessful about SOUL, and what these former students gained from their participation.	The author interviewed 8 former students (6 female, 2 male) who participated in the Society of Unlimited Learning (SOUL) program at William Patterson College (NJ) during the summer of 1968. These students were the only members of the original 20 participants (9 female, 11 male) that either withdrew or were suspended from the institution.	SOUL was a 4-week residential program that included English, reading, math, speech, and communication skills classes, as well as recreational activities and cultural events.	The only outcome measure considered was student satisfaction.	■ Former students were generally pleased with the program. ■ The use of experienced teachers was a motivating factor. ■ The program increased the students' self-confidence, interest in learning, and study skills. ■ Each of the students found the skills gained in the speech class to be useful. ■ Interviews with the female students, however, revealed that the lack of female advisors was a disadvantage.

Table 1h. Multiple service projects (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Doyle, T. J. (1989). *Report on the Ferris State University Collegiate Skills Program: Three Year Findings of the Collegiate Skills Program's Impact on Academically High Risk General Studies Freshmen.*	The study reviewed the development, implementation, and outcomes of the Collegiate Skills Program (CSP).	Three groups of CSP participants were examined: those that began school in 1985, those that began in 1986, and those that began in 1987. CSP participants were entering freshmen with a high school GPA less than a 2.0. A total of 700 CSP participants were examined.	CSP offered freshman-year services to assist under-prepared students in their transition to college. These services included summer orientation, assessment, advising, workshops, developmental courses in reading and writing, career exploration, and study skills services.	Outcome measures focused on the first academic year and included term-to-term persistence, mean credits attempted, mean credits completed, GPA, and performance on competency tests. Participant pass rates on a number of freshman classes were the only outcome measure that were compared to that of the university population. The percentage of freshmen returning for a second year was also measured.	■ Three years of program data indicated that the program considerably increased the competencies of under-prepared students within 30 weeks. ■ A comparison of participant and university pass rates for several freshman courses suggested that while participants may have lower pass rates for these classes, the majority of participants successfully passed many freshman courses. ■ Program participation increased retention rates between the freshman and sophomore years. Prior to CSP, 30 percent of under-prepared freshmen returned for their sophomore year. Fifty percent of CSP participants, however, returned for their sophomore year.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Fox, R.N. (1985). *Application of a Conceptual Model of College Withdrawal to Disadvantaged Students.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.	The purpose of this study was to examine what must be done to apply an established conceptual model of college withdrawal to disadvantaged students at an urban commuter institution. The theoretical model selected as a basis for study was Tinto's model of student withdrawal. One primary goal of the study was to determine whether social or academic integration had a greater effect on student retention.	After selecting two groups of students for two pilot data collections, a third group of students were selected for the main study. This group was composed of freshman students enrolled in the Search for Education, Elevation, and Knowledge (SEEK) program at a senior college within the City University of New York. These 435 students entered the institution in the fall of 1983.	The majority of SEEK participants had required remedial and/or developmental instruction in reading, writing, and/or mathematics. In addition, these students were also given supplementary stipends, academic and personal counseling, and tutoring.	Various family background characteristics, individual attributes, precollege schooling, and initial goal and institutional commitments were studied to determine the impact of social and academic integration on retention.	■ Persistence/withdrawal behavior was directly related to three variables: academic and social integration, and intention. Academic integration appeared to have the greatest direct influence on retention. ■ Freshman year GPA, proportion of remedial courses passed, number of unofficial class withdrawals, number of academic counseling contacts, and total number of hours tutored were correlated with persistence. These factors were all related to academic integration. ■ The model emphasized the importance of informal student/faculty interactions (although this was not evidenced in simple correlation analysis). ■ The only measure that yielded a significant correlation with social integration was the extent and quality of peer relationships. None of the interactions with instructors or counselors were significantly related to persistence.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Friedlander, J. (1982). *Innovative Approaches to Delivering Academic Assistance to Students.* Los Angeles, CA: Center for the Study of Community Colleges.	This report reviewed various approaches used by six large urban community colleges in delivering academic assistance to students.	Students enrolled in six large urban community colleges.	Practices in the following areas were examined, including: ■ Midterm interventions; ■ Faculty referrals to student services; ■ Integrating study skills training and support services with subject area courses; ■ Identifying high-risk courses; and ■ Block programming (combining coursework; interdisciplinary structure).		The following trends were identified among the community colleges: ■ Support staff visited classrooms to promote services and programs; ■ Attempts were made to identify and to assist high-risk students prior to the first exam; ■ Policies permitting high-risk students to enroll in certain courses only if they received supplemental instruction were established; ■ Monitoring student progress, advising, and counseling were included as part of all credit courses; ■ Faculty were involved in the delivery of support services; ■ Academic support services covering particular subject areas were coordinated; and ■ Funding patterns for academic support services were based on program operation costs.

Table 1h. Multiple service projects (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Gudan, S., and Sudik, D. (1981). *Academic Support Services for Students with Special Needs.* Paper presented at the Annual Meeting of the Western College Research Association, Dallas, TX.	This report described programs available through the Learning Opportunity Center at Schoolcraft College.	All incoming freshmen were assessed during orientation. All students could participate in the general services provided by the Learning Opportunity Center.	The Learning Opportunity Center provided assessment, a learning lab, peer tutoring, and a study skills workshop. Special services were provided for students with limited English-speaking ability (LESA). Tutoring services included drop-in tutoring and "dial a tutor" services. Services for LESA students focused on building language skills through verbal exchanges with volunteers. The learning lab offered assistance in reading, study skills, language development, and computational math.		
Hall, B., et al. (1990). *Mt. San Antonio College Matriculation Research Update, 1989-90.* Walnut, CA: Mount San Antonio College.	This study examined the educational outcomes of students participating in Mt. San Antonio College's matriculation program. Participant outcomes were compared to those of students who were eligible for the program but did not participate. Educational outcomes were examined for eight cohorts over an eight-semester period.	■ The study examined all students participating in and eligible for the matriculation program since the fall of 1986. Students eligible for the matriculation program were either first-time college students seeking a degree or certificate, or first semester transfers from another 2- or 4-year college who had not yet earned an AA or BA degree. ■ Eight cohorts of students were examined. Cohorts consisted of those students who began school during the same semester (e.g., fall 1986, spring 1987, fall 1987, etc.). ■ Overall, the study compared over 21,000 students who received matriculation services to approximately 5,500 students who were eligible for the matriculation program but did not participate beyond admissions services.	Matriculation services included admissions services, assessment, orientation, counseling/advisement, and followup services.	The outcomes measured included retention, GPA, persistence from semester to semester, and degree completion rates for the first six cohorts (fall 1986 to spring 1989).	■ Across the first six cohorts, matriculation participants earned more degrees and certificates than non-participants, persisted at higher rates in every semester except one, and completed courses at higher rates. ■ Overall, matriculation participants earned comparable or lower GPAs compared with nonparticipants. Asian, Hispanic, and white participants, however, earned higher GPAs than non-participants.

Table 1h Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Levin, M.E., and Levin, J.R. (1991). A Critical Examination of Academic Retention Programs for At-Risk Minority College Students. *Journal of College Student Development*, 32(4):323-334.	The authors summarized literature on retention and monitoring programs at several institutions.				Based on their case study analysis, the authors outlined five critical components of effective programs: ■ Proactive interventions, beginning in the students' first term or earlier as at-risk minority students may not initiate contact with support services. A number of schools use an early warning system where professors identify students having trouble at midterm for referral to study skills workshops. ■ Small-group tutorials, rather than one-on-one tutoring as a means of encouraging social integration. For example, the Summer Bridge Program at UC San Diego uses a peer support network to help students with the transition to college in the fall. Participating students study and work together on academic tasks. ■ Teaching of study skills, learning strategies and test-taking through an integrated approach, (i.e., as part of a regular academic course rather than as a separate course). The best results appear to be found when subject-specific skills are taught in conjunction with course content. Then students have the opportunity to apply skills immediately and receive feedback and reinforcement. ■ Development of basic language skills in reading, writing, listening, and speaking.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Levin, M.E., and Levin, J.R. (1991) (continued)					■ Quality instruction provided by experienced and committed teachers.
McCaig, K.A. (1993). Collaborative Enhancement Strategies for Academically At-Risk First-Year Students. *College Student Affairs Journal*, 13(1): 58-64.	This report examined the Success Program (SP) at an urban university.	SP targeted first-year students conditionally admitted to the university. Typically, these were students with a high school GPA below 2.5.	The Success Program (SP) combined academic and nonacademic services to improve the retention rates of participants. Specifically, SP included an orientation to ease the transition to college; a 3-day, off-campus retreat for participants to form peer groups; three courses to develop critical reading and writing skills, study skills, and explore career options; and a network of peer mentors to offer ongoing support and guidance.		The freshman and sophomore grades and retention rates of three cohorts of SP participants were examined. All three cohorts earned higher college GPAs than their high school GPAs. Retention rates for SP participants were better than those of academically underprepared students prior to the existence of SP. Across the three cohorts, however, the retention rates varied widely. For example, at the end of the freshman year, 88 percent of the 1989-90 cohort was enrolled, 71 percent of the 1990-91 cohort was enrolled, and 67 percent of the 1991-92 cohort was enrolled. At the end of the sophomore year, 58 percent of the 1989-90 cohort was enrolled, 39 percent of the 1990-91 cohort was enrolled, and 56 percent of the 1991-92 cohort was enrolled.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Nelson, W.L. (1994). Receptivity to Institutional Assistance: An Important Variable for African-American and Mexican-American Student Achievement. *Journal of College Student Development*, 35(5):378-383.	Based on the premise that at-risk students are less likely to participate in campus support services and programs, this study explored whether retention rates can be predicted based on student receptivity to structured institutional assistance. It considered three issues: 1. Are at-risk students different than high achievers in their receptivity to services? 2. Are successful at-risk students (GPA at or above 2.0) different than unsuccessful at-risk students in terms of their receptivity to services? 3. Are successful high achievers (GPA at or above 2.0) different than unsuccessful high achievers in terms of their receptivity to services?	The target group included 92 students who participated in the 1991 summer preview program and 80 students who participated in the 1991 student success program. Of the students from the preview program, 52 percent were African American and 48 percent were Mexican American/Hispanic. For the student success program participants, these ratios were 30 percent and 70 percent, respectively. These students attended a large, urban, southwestern university. African Americans composed 3.7 percent of the total student body and Mexican American/Hispanic students composed 11.7 percent of enrollment.	Each student participated in either the preview program, a 6-week summer program for high achievers, or the student success program, a 9-week program for at-risk students. All of these students were eligible for the following services: ■ Personal counseling interview; ■ Mentoring program using peer advisors; ■ Tutorial sessions (individualized or group); ■ Career informational sessions with professional career counselors; and ■ Social enrichment activities.	Using the College Student Invemtory (CSI) students' receptivity to academic assistance, personal counseling, social enrichment, and career counseling were measured.	The data revealed the following results: ■ At-risk students were significantly more receptive to career counseling than were high achievers. High achievers, however, were almost significantly more receptive to academic assistance. ■ Between the successful members of each group, there were significant differences in their receptivity to career counseling and social enrichment. ■ Within the at-risk group, there were significant differences in the receptivity to academic assistance among the successful and unsuccessful students. ■ There were no significant differences within the high achievers' group. ■ The author concluded that receptivity to academic assistance is a good predictor of academic achievement at the end of the first year.

Table 1h. Multiple service projects (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Office of Institutional Research and Analysis. (1992). *Prince George's Community College Annual Assessment Report.* Largo, MD: Prince George's Community College.	This report presented findings from several ongoing assessments of student learning outcomes at Prince George's Community College (PGCC) in Maryland. It reviewed student outcomes, minority student achievement, and services available to minority students. The services, generally, focused on minority enrollment and retention.	The target group included students who entered PACC in the fall of 1990 and 1991.	The following services were provided to improve minority achievement: ■ Special testing and advisement--used by 800 high school students annually. ■ Bridge to Success--used by 80 disadvantaged and disabled vocational high school students annually. ■ Science and You--assists 30 women annually. ■ Minority Student Retention Program--provides activities for 300 at-risk minority students each year. ■ BIO 100/CHM100--170 students enroll annually. ■ Student Support Services--serves 200 low-income students, first generation college students, and students with learning and physical disabilities. ■ SPAN--pilot program for students receiving special education services in high school. ■ Vocational Support Services--serves over 2,000 vocational education students annually. ■ Tutoring Center--over 1,300 students participate in activities each year. ■ Writing Center--serves over 700 students annually.	The report included a review of student learning outcomes for the entire student population in the following areas: ■ student retention and graduation rates; ■ transfer preparation; ■ employment preparation; ■ general education; ■ remedial education; and ■ student evaluations.	■ Of students entering in the fall of 1991, 66 percent needed remediation in one or more of the following areas: reading, composition, and math. ■ A longitudinal study of students beginning in the fall of 1990 with remedial education needs revealed the following: 1. Of those students needing at least one developmental reading course, only 32 had completed such coursework and were ready to enroll in credit courses by the end of fall 1991. 2. Of those needing developmental English, only 25 percent had completed the such coursework and were ready to enroll in credit courses. 3. For those needing remedial math, only 8 percent had completed the necessary coursework to be ready for the introductory math course.

Table 1h. Multiple service projects (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Robert, E.R., and Thomson, G. (1994). Learning Assistance and the Success of Underrepresented Students at Berkeley. *Journal of Developmental Education* 17(3): 4-14.	This study examined the Student Learning Center and the Summer Bridge Program at the University of California-Berkeley.	■ Summer Bridge served between 150 and 200 entering freshmen each summer. Participants were typically low-income, first-generation college students; underrepresented minorities; student athletes; students with disabilities; and specially admitted students. Participants were often not as well prepared for college as nonparticipants. ■ SLC served over 3,500 lower division students (freshmen and sophomores) each semester. SLC targeted students who were having academic difficulties, members of ethnic groups with low graduation rates, and specially admitted students.	■ Summer Bridge was a residential transition program that included orientation, counseling, peer advising, assessment, and developmental courses. ■ The Student Learning Center (SLC) offered a variety of academic support services including writing workshops; study groups; individual and small group tutoring; and classes that focus on developing independent thinking, critical analysis, problem solving, and so forth.		■ Summer Bridge was designed to improve participants' persistence rates. Participants developed skills to succeed in Berkeley's academic environment, earn course credits, form peer groups based on academic activities, learn to ask for and give help (therefore reducing the stigma that surrounds support services), and become accustomed to using academic support services. Summer Bridge participants had 2-year retention rates as high or higher than nonparticipants. ■ SLC participants earned comparable or higher overall GPAs than nonparticipants. The article identified a number of features of successful retention programs including: ■ Proactive interventions, ■ Small group tutorials, ■ Teaching study strategies and test-taking techniques, ■ Development of students' basic language skills, ■ Quality instruction, ■ Reducing program stigma, ■ Building a supportive community that endorses academic assistance, ■ Building self-esteem, ■ Positive role models, and ■ Collaborative learning where students work together.

Table 2. Evaluation design studies

Study Name	Description	Recommended Evaluation Design
Balenger, Victoria, et al. (1989). *Prescriptive Evaluation Plans: A Method of Large-Scale Evaluation in Student Affairs.* College Park, MD: University of Maryland.	This report discussed a self-evaluation method that is appropriate for a program with more than one service unit. It was described within the context of a student affairs office but can be generalized to fit any service program.	The evaluation method consisted of four major steps: ■ Appoint an evaluation coordinator to support each unit evaluator. ■ Appoint an evaluator from each unit and train them in the following four areas: 1. Developing purpose statements; 2. Data collection; 3. Data analysis; and 4. Reporting. ■ Evaluators meet with staff to identify indicators of accomplishment and develop a prescriptive evaluation plan (PEP) for each unit. PEPs suggest how the service unit might measure purpose statements against the following five evaluation criteria: 1. Whether the purpose is being accomplished; 2. Whether the purpose is being accomplished in a user-friendly manner; 3. Whether the purpose is being accomplished in a cost-effective manner; 4. Whether the purpose is being accomplished in an efficient manner; and 5. How the purpose promotes student development. ■ The evaluator executes the evaluation using the PEP as a guideline.
California Association of Community Colleges. (1989). *Matriculation Local Research Options Project.* Sacramento, CA: Author.	This report examined institutional research as a means of evaluating matriculation services (e.g., admissions, orientation, assessment, counseling/advising) in California community colleges.	Nine model research designs were presented in this report. Each research design description included the methodology, anticipated results, and discussion points. The designs addressed the following topics: ■ Comparing the academic performance of students who are fully, partially, or not served by matriculation services; ■ An evaluation of student academic success before and after implementing matriculation; ■ Disproportionate impact and writing assessment; ■ Evaluating the effectiveness of remedial placement; ■ History course success based on English eligibility; ■ Student access and the implementation of matriculation; ■ Monitoring changes in student goals before and after matriculation; and ■ Student satisfaction with matriculation.

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Table 2. Evaluation design studies (continued)

Study Name	**Description**	**Recommended Evaluation Design**
Fillmore, Emery. (1991). *Community College Program Development and Evaluation Model for Student Services.* Trabuco Canyon, CA: Emcon Press.	This guide described two program development models designed to improve community college counseling programs: The Goals/Objectives-Based Model and the Objective-Free model. The Goals/Objectives-Based Model discussion did not include recommendations regarding an evaluation, but the discussion of the Objective-Free model included a sample evaluation format.	In the Objective-Free Model, the evaluation involved determining if the program goals were met. The report provided several of the possible program goals examples, two of which are reproduced below: ■ Goal one: Establish and maintain an articulation program with area high schools. Evaluation: High school counselors meet, discuss, and evaluate the performance of their articulation committees in the following areas: - Satisfactory attendance; - Meetings scheduled at appropriate times and dates; and - Communication improvements. ■ Goal two: Establish and maintain an assessment program for high school students. Evaluation: - Test publicity; - Best time to test; - Time allowed for testing; - Test validity and reliability; and - Procedure for getting students released for testing.
Shell, Duane, et al. (1986). *We Do--They Do: A Model for Practical Service Program Evaluation.* Lincoln, NE: University of Nebraska.	This study argued that program-level evaluation is, in many cases, more critical than system-wide evaluation because it is the direct interaction of service providers with clients or students that primarily determines client or student outcomes. It proposed a program level model of evaluation called "We Do-They Do."	The "We Do--They Do" model was structured around three key questions that must be adequately addressed to ensure a sound evaluation, including: ■ Did the staff (we) do what we said we were going to do? - Did the staff sufficiently document and report these activities? ■ Did the participants (they) do what they were supposed to do? - Did the staff sufficiently document and report these activities? ■ How do we know if we were effective? - Determine the expected outcomes; - Determine how and if outcomes can be measured; - Determine methodology to be used to collect and assess data; and - Determine what reports are needed.

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Table 2. Evaluation design studies (continued)

Study Name	**Description**	**Recommended Evaluation Design**
U.S. Department of Education. (1982). *Evaluability Assessment of the Special Programs for Disadvantaged Students*. Washington, DC: Author.	This report assessed the evaluability of the federal special programs for disadvantaged students, now known as the TRIO programs. Interviews, reviews of program materials, and information analysis techniques were used to develop management options for improving evaluations. Additionally, a two-pronged evaluation design that would sufficiently assess the effectiveness of the programs was proposed.	The authors suggested a two-pronged evaluation approach: ■ Rapid Feedback Evaluation: This phone or mail survey should be sent to a small representative sample of grantees. The data would be used to compile critical indicators of grantee performance. ■ Large Scale Impact Study: In this evaluation, program recipients would be compared with similar nonrecipients over a period of years to determine long-term participant outcomes. Possible outcomes include subsequent enrollment in postsecondary education, financial aid awards, adjustment to postsecondary education, retention, and grades. The analysts would determine the relationship of these outcomes to the amount and type of services received.

Table 3. Statewide project assessments

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
California State Postsecondary Education Commission. (1983). *The California Student Opportunity and Access Program. A Final Evaluation*. Sacramento, CA.	This report reviewed the development of five pilot projects funded through the California Student Opportunity and Access (Cal-Soap) program, and assessed the overall development of the Cal-Soap program.	The pilot programs targeted low-income high school and community college students. Outcomes were measured at the project level rather than student level.	Each of the five projects offered similar services. Overall, services for secondary students focused on raising their achievement and awareness about postsecondary opportunities. This included individual and group tutoring, peer advisement, and seminars on postsecondary opportunities and careers. Services for postsecondary students focused on transferring to a 4-year college, including advisement and workshops on transferring.	Each pilot project was evaluated based on the following: ■ Implementation of activities; ■ Achievement of objectives; ■ Financial support/commitment to the project; ■ Effectiveness in promoting interinstitutional coordination of outreach programs; ■ Improvement over time; and ■ Project administration.	Postsecondary student services appeared to be a secondary objective of these projects. In terms of the postsecondary services at each of the five projects, student participation rates were lower than expected. For example: ■ At one project, only two of four workshops were held, and only three-quarters of the expected students attended. ■ At another, roughly one-third of the 600 expected students participated in peer counseling services.
Cordero, W.J. (1990). *Coordination of Effort Among Student Services Programs. A Report*. Sacramento, CA: California Community Colleges, Board of Governors.	Since 1969, California community colleges have administered support services to improve access to and the success of students who are underrepresented, under-prepared, or have other needs. This study examined the coordination of existing programs, the possibility of services duplication, and whether such programs are making efficient use of limited resources.	The sample included close to 10 programs currently administered within the California community college system.	Services included the Matriculation program and the Extended Opportunity Programs and Services (EOPS). Refer to the 1992 Scott-Skillman study (as described later in this table) for additional details.	The evaluation identified factors or practices used by the community colleges to encourage coordination and to reduce duplication.	■ Colleges used the Matriculation program to identify special needs and to refer student to appropriate services. ■ EOPS offered supplemental services rather than duplicative. ■ Duplicity was reduced because not all support services and not all service components were available at each community colleges.

Table 3. Statewide project assessments (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Guthrie, L. F. (1992). *Retention and Performance of At-Risk Students in the California State University System. Knowledge Brief Number 10.* San Francisco, CA: Far West Laboratory for Educational Research and Development.	This brief presented results from a 5-year evaluation of the Summer Bridge and Intensive Learning Experience (ILE) programs at the California State University (CSU) System.	The evaluation covered the period between 1986 and 1991 and examined three cohorts of Summer Bridge and ILE participants. Approximately 7,000 Summer Bridge participants and over 12,000 ILE participants were included.	■ The Summer Bridge program was a 3- to 6-week summer residential program for underrepresented students entering as first time freshmen. The program offered instruction in English and math, academic advising, counseling, and orientation. ■ ILE provided remedial courses in English and math for students who tested in the lowest quartile on the English and math placement tests for entering freshmen.	The evaluation examined retention rates and academic performance. Academic performance was measured as performance on the Entry Level Mathematics exam (ELM) and enrollment and grades in baccalaureate math courses. Outcomes were examined by race/ethnicity, admission status (regular or special), campus, and entering test performance. Participant performance was compared to that of CSU students systemwide.	■ Five-year retention rates for Summer Bridge and ILE participants were comparable to those of CSU students systemwide. ■ Retention rates for ILE participants who had ELM scores were higher than those for students eligible for ILE but not participating. Retention rates for all ILE students, however, were less than those of ILE eligible students. ■ There was a positive relationship between the ELM score and participation and success in baccalaureate math. Those with the lowest ELM scores (i.e., ILE participants) were much less likely to enroll in and pass baccalaureate math than those students who scored higher on the ELM.

Table 3. Statewide project assessments (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Office of the Chancellor. (1989). *Quality Indicators for Gender Equity and Single Parent/Homemaker Programs in California's Community Colleges.* Sacramento, CA: California Community Colleges.	This study examined how well gender equity and single parent/homemaker efforts were serving the needs of students enrolled in California community colleges. In addition, it described 19 quality indicators for defining support services.		Gender equity and single parent/homemaker special services.		The 104 gender equity and single parent/homemaker indicators addressed the following areas: 1. Program planning and evaluation. 2. Support and coordination with the college. 3. Coordination outside the college. The support services indicators covered key elements of support services including the identification of special needs; provision of counseling services; development of student self-esteem; maximization of participation by helping to meet financial, transportation, childcare, books/materials, and other needs; and conducting followup with participants.

Table 3. Statewide project assessments (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Office of the State Comptroller, State of New York. (1992). *Staff Study - State University of New York Should Analyze and Evaluate Support Service Costs.* Report 93-D-11. Albany, NY: Author	A 1991 study suggested that the State University of New York (SUNY) system had higher expenditures, $62 million more, for student support services than did several peer institutions. This study examined student support services costs for SUNY during fiscal year 1989-90 to determine why SUNY costs were higher than other institutions.	The sample included all institutions within the SUNY system.	Student support services.		■ Study results revealed two practices that may have contributed to SUNY's higher costs: 1. SUNY did not establish a set of expenditure guidelines for support services. 2. SUNY did not follow up or evaluate support services costs. ■ It was also determined that the support services cost per FTE student varied widely across SUNY institutions, but the reason for this could not be identified. ■ The largest cost component of support services was personnel. Thus, cost saving could result from "the reduction or reallocation of personnel." ■ The authors also recommended that SUNY establish expenditure standards for support services costs.

Table 3. Statewide project assessments (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Richardson, Richard C. (1991). *Promoting Fair College Outcomes: Learning from the Experiences of the Past Decade*. Denver, CO: Educational Commission of the States.	This study examined state practices and institutional practices associated with improved equity outcomes during the 1980s. It was part of a 5-year study funded by OERI.	Initially, case studies of 10 public colleges with strong track records of graduating African American, Hispanic, or American Indian students were conducted. The results of these studies were used to develop a questionnaire administered in 10 states at 142 public, 4-year institutions.			▪ About 20 percent of the predominantly Anglo institutions improved both enrollment and graduation equity outcomes between 1980 and 1988. ▪ About 20 percent of the predominantly Anglo institutions improved enrollment equity, but lost ground on graduation equity. ▪ About 30 percent of the institutions lost ground in both enrollment and graduation equity. ▪ State efforts to improve access and undergraduate education had positive effects. ▪ State policies improving transfer opportunities had a strong positive effect. ▪ State actions primarily influenced graduation equity for African Americans and enrollment equity for Hispanics.

Table 3. Statewide project assessments (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Scott-Skillman, T., and Halliday, K. (1991). *Matriculation: A Report on Third-Year Implementation, 1989-90.* Sacramento, CA: Board of Governors, California Community Colleges.	California community college campuses planned to fully implement the Matriculation program by June 30, 1991. This study examined their progress toward full implementation of the program as of 1989-90 and assessed the performance of program participants.	A sample of over 11,000 students was drawn from 12 community colleges for the study. The study examined first-year outcomes for three groups of students: 1) those that received full service, 4 or 5 program components; 2) those that received partial service, 2 or 3 program components; 3) and those that received admission services only.	The Matriculation program consisted of seven components: five services for students and two services for the college. These components included: ■ Student Services 1. Admissions; 2. Orientation; 3. Assessment; 4. Counseling/advising; and 5. Followup services; ■ Services for colleges 1. Research and evaluation; and 2. Coordination and training.	The outcome measures examined include persistence from the fall to spring semester, grades, the ratio of courses completed to courses attempted, and student progress as measured by the proportion of students who met their education goal or were still enrolled. Outcome measures were cross classified by entering academic skills and socio-economic status.	The findings revealed the following, including: ■ Receipt of full service lead to better outcomes than receipt of partial service or admissions only. ■ Persistence rates improved with the receipt of more services. Of the full service students, 87 percent persisted from the fall to spring compared to 80 percent of partial service students and 70 percent of admissions only students. A similar relationship was found when controlling for entering skills and SES. ■ Like persistence rates, rates of student progress increased with receipt of more services. This relationship also held when controlling for entering skills level and SES. ■ Students with entering skills below the college level and receiving full service had higher ratios of course completion than those students who received less services. This pattern, however, did not hold for all students. ■ Receipt of additional matriculation services beyond admissions led to higher GPAs for students entering with skills below the college level and students from low or medium SES families.

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Table 3. Statewide project assessments (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Scott-Skillman, T., et al. (1992). *Student Services and Special Programs: A Report on Program Effectiveness*. Sacramento, CA.: California Community Colleges, Board of Governors.	This study examined the effectiveness of student services and special programs within the California community college system during the 1990-91 academic year.	The target group varied by support program.	■ Extended Opportunity Programs & Services (EOPS): financial and academic support services for at-risk students. ■ Disabled Students Programs & Services (DSPS): support services for students with disabilities. ■ Cooperative Agencies Resources for Education (CARE): support services for welfare recipients. ■ Board Financial Assistance Program (BFAP): student financial aid for financially needy students. ■ Greater Avenues for Independence (GAIN): education and employment services for AFDC applicants and recipients. ■ Foster Care Education: support services and instruction for foster care parents. ■ Child Development: trains child development teachers. ■ Matriculation: support services designed to promote completion of education goals.	The study measured equity, access, retention, persistence, and educational outcomes.	■ EOPS: Participants persisted beyond one semester at higher rates, earned comparable GPAs, attempted and completed a comparable number of courses as non-participants. ■ DSPS: Participants persisted beyond one semester and completed courses at comparable rates as the general student population. Participants also earned similar GPAs as the general population. ■ CARE: Participants earned slightly higher GPAs than nonparticipants. ■ BFAP: Aid recipients earned higher GPAs, and persisted, transferred, and completed courses at higher rates than nonrecipients. ■ GAIN: Participants had higher GPAs, higher progress rates, and similar retention rates as nonparticipants. ■ Foster Care Education: Participants had high levels of persistence and tended to pursue education beyond the minimum requirements. ■ Child Development: Participants had a high course completion ratio. ■ Matriculation: Participants who received more services had higher GPAs, and higher retention and persistence rates.

Table 3. Statewide project assessments (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Southern Regional Education Board. (1991). They Came to College? A Developmental Profile of First-Time Freshmen in SREB States. *Issues in Higher Education*, No. 25.	This article described the results of a 1988-89 remedial/developmental education survey conducted by the Southern Regional Education Board.	The 1988-89 remedial/developmental survey included 826 2-year and 4-year public and private institutions in SREB states.	Remedial/developmental programs in reading, writing, and mathematics.	The outcome measures considered were enrollment rates in remedial courses by state, sex, institutional level, and race/ethnicity. In addition, the effects of mandated assessments were analyzed.	▪ Over 90 percent of the public colleges and universities surveyed had remedial/developmental programs. ▪ More than one-third of first-time freshmen attending public institutions were enrolled in at least one remedial course. ▪ Over 70 percent of the private institutions responding to the survey offered developmental/remedial courses. ▪ Thirty-two percent of first-time freshmen were enrolled in at least one remedial course. ▪ The six SREB states having mandated statewide assessment and placement programs consistently reported having higher average percentages of students needing remediation than states without mandated assessments. ▪ Remedial course enrollment rates for black and Hispanic student were one and one-half to two times greater than enrollment rates for white students.

Table 3. Statewide project assessments (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Walters, J., and Marcus, L. R. (1985). *Maximizing Retention Rates in Collegiate Programs for Disadvantaged Students*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.	The study examined retention rates among Equal Opportunity Fund (EOF) participants at eight New Jersey State colleges.	The target group included 807 first-time full-time freshmen who entered the EOF program at eight colleges during the 1980 summer session. EOF participants met certain financial criteria and were not eligible for regular admission to the college. Specific requirements varied by college.	EOF offered 6-8 week summer academic programs, remediation, counseling, tutoring, and financial aid.	The study examined retention rates between the summer of 1980 and fall 1982 semesters. The study also examined the academic preparation of participants; participation and frequency of remediation, counseling, and tutoring; commitment of senior program administrators; and the role of the faculty at the eight colleges to determine if there was a relationship between these factors and positive retention rates.	■ Almost all summer participants returned to school for the fall of 1980. ■ By the fall of 1981, between 58 percent and 77 percent of participants were still enrolled. ■ By the fall of 1982, between 30 percent and 50 percent of participants were still enrolled. ■ Differences in retention rates appear to be related only to the role of faculty in the program. Colleges where regular faculty members were major players in the program had better retention rates than programs that used adjunct faculty and those that used regular faculty but did not involve them in the program substantially.

Table 4. TRIO/SDSS/SSS project evaluations

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Cahalan, M., and Muraskin, L. (1994). *National Study of Student Support Services Interim Report: Vol.1 Program Implementation*. Washington, DC: U.S. Department of Education.	This was the first interim report of the congressionally mandated National Study of Student Support Services (SSS). It presented the results of a descriptive study of SSS program implementation and characteristics. The first part of the report provided an overview of the SSS program drawn from several national data sets and a survey of 200 SSS project directors. The second part of the report presented case studies of support services, policies, and programs in 50 institutions--30 with SSS programs and 20 without projects.	The target groups included 200 SSS project directors, 30 institutions with SSS projects, and 20 institutions not having SSS projects. Data were also collected from the Integrated Postsecondary Education Data System (IPEDS) on the characteristics of institutions with and without SSS grants.	Service offerings varied from project to project. Among possible services available to participants were tutoring, academic advising, developmental/remedial courses, professional counseling, workshops, and cultural events.	Outcome measures included retention rates, number of service contacts, participation by service, and SSS project characteristics.	■ Project directors indicated that about 61 percent of SSS participants are female. ■ For the 1990-91 academic year, project directors reported serving an average of 254 students. ■ Estimates showed that 46 percent of SSS participants were minority students, 86 percent were academically needy, 62 percent were below 150 percent of poverty, 8 percent were learning disabled, and 7 percent were physically disabled. ■ Of the students served at 2-year schools, 48 percent were first-time freshmen. At 4-year schools, 42 percent of the students served were first-time freshmen. Only 9 percent of the services at 4-year schools were received by seniors. ■ The most frequent reason cited for participation in SSS was to help pass a course. ■ Of the project directors surveyed, 72 percent were full-time employees and 87 percent received their salary from SSS grant money. ■ Seventy-three percent of SSS students returned for their second year compared with 68 percent of non-SSS participants. ■ Slightly more than half (53 percent) of SSS participants remained in the program for more than a year.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Cahalan, M., Chaney, B., and Chen, S. (1994). *National Study of Student Support Services Interim Report: Vol.2. Profile of Freshman Participants and Project Services: 1991-92.* Washington, DC: U.S. Department of Education.	This longitudinal study examined the educational effects of federally supported SSS projects on college freshmen. It addressed two primary research questions: ■ Who receives services and what are the types and amounts of services they receive? ■ What is the range and mix of support services offerings funded by the SSS program?	The sample included 3,000 SSS freshmen from 28 sites and a comparison group of 3,000 non-SSS 1991-92 freshmen from 28 SSS and 19 non-SSS sites. Data were collected through a baseline survey (1991-92), a service record analysis (1991-92), a transcript analysis (1992-94), and a followup survey (1994-95).	Service offerings varied from project to project. Among possible services available to participants were tutoring, academic advising, developmental/remedial courses, professional counseling, workshops, and cultural events.	Outcome measures included student persistence rates, the number of credits taken, and GPAs.	■ Most SSS freshmen (60 percent) were either 18 or 19 years old, but this proportion was lower than that found among all freshmen nationwide (90 percent). SSS students at 2-year institutions were older than SSS students overall, with 56 percent (compared with 31 percent) 21 years or older. ■ Among SSS freshman participants, 41 percent were white, 38 percent African American, 22 percent Hispanic, 4 percent Asian, and 2 percent Native American. Among all under-graduates, 80 percent were white, 9 percent African American, 6 percent Hispanic, 4 percent Asian, and 0.8 percent Native American. ■ The mean college entrance test scores for the SSS students were 352 on the SAT-Verbal, 405 on the SAT-math, and 19 on the ACT composite. By comparison, the national averages for all freshmen were 422, 475, and 21, respectively. ■ About 63 percent of the SSS participants participated in tutoring. This service was usually provided by peer tutors. Students receiving peer tutoring averaged 12 contacts.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Cahalan, M., Chaney, B., and Chen, S. (continued)					■ About 22 percent of the SSS participants had instructional courses as part of the SSS program. About 22 percent of the participants participated in SSS-sponsored workshops and 13 percent in labs. Only 7 percent participated in cultural events. ■ The SSS students earned a mean of 21.9 credits in their freshman year, with students at doctoral institutions earning the most (23.8 credits) and students at 2-year institutions earning the least (19.9 credits). ■ The mean GPA for SSS students was 2.3. There were generally only small differences in GPA based on the type of institution the student was attending, but there were larger differences based on the subject area of the courses. Within the five major subject areas (English, mathematics, social sciences, life sciences, and physical sciences), SSS students earned the highest GPA in English (2.5) and the lowest in the physical and life sciences (2.1).

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Coulson, J.E., Bradford, C., and Kaye, J. (1981). *Evaluation of the Special Services for Disadvantaged Students (SSDS) Program: 1979-80 Academic Year.* Santa Monica, CA: System Development Corp.	This study described the SSDS program as administered during the 1979-80 academic year and measured the short-term effects of SSDS services on freshman participants.	■ Using stratified random sampling, the study drew a sample of 58 institutions with "mature" SSDS projects (in operation for at least 3 years) for participation. From each institution, roughly 200 students (90 percent were freshmen) were selected for participation, of which roughly half were SSDS participants and half were eligible for SSDS but had not yet participated in SSDS. ■ Program effects were measured for the 1979-80 academic year. Students were surveyed in the fall and spring. Approximately 6,600 students participated in the Fall survey, and 5,800 participated in the Spring survey. Transcript information was collected for 5,683 students.	SSDS-funded and SSDS-like services: counseling, orientation, tutoring, and cultural services.	Two sets of measures for the short-term effects analysis were used: 1) From student transcripts: persistence, total credit hours attempted, total credit hours completed, and grade point average. 2) Derived from student responses: educational desires; educational expectations; career plans; student's perception of own academic skills; and perceptions of academic, personal, and general campus problems.	The findings from the short-term effects analysis revealed the following: ■ A positive relationship was found among receipt and frequency of participation and persistence rates, total courses attempted, and total courses completed during the first academic year. ■ Participants receiving the most services, however, had lower GPAs than participants receiving less services or nonparticipants. ■ In addition to SSDS services, financial aid had a positive effect on persistence, number of courses attempted and completed, and GPA. Minority status and low family income had a negative effect on GPA and number of courses attempted and completed. ■ No relationship was found between SSDS participation and the second set of outcome measures.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Coulson, J.E., and Bradford, C. (1983). *Evaluation of the Special Services for Disadvantaged Students (SSDS) Program: Final Report.* Santa Monica, CA: System Development Corp.	This followup study to the 1981 study (see previous page) measured the long-term effects of SSDS services between the 1979-80 and 1982-83 academic years.	The sample was limited to individuals who were freshmen during the base year study. Approximately 2,700 students completed the followup mail survey. Transcript information was collected for roughly 3,900 students. Data were collected during the 1982-83 academic year.	The treatment included SSDS-funded and SSDS-like services; academic services such as tutoring, group instruction, academic counseling; and nonacademic services including student orientation, cultural services, assessment, and referrals.	The outcomes measured included persistence, the number of courses attempted and completed, and grade point average since 1979-80. Also, the study examined the effect of SSDS services on participants' long-term job plans.	■ A positive relationship was found between moderate levels of academic services in the freshman year and persistence, total credits attempted, and credits completed beyond the first year. ■ Intensive receipt of academic services in the freshman year was not associated with positive outcomes beyond the first year. ■ Receipt of nonacademic services during the freshman year and beyond was positively related to long-term outcome measures. ■ Receipt of academic services beyond the freshman year, however, was associated with negative long-term outcomes.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Davis, J.A., Burkheimer, G., and Borders-Patterson, A. (1975). *The Impact of Special Services Program in Higher Education for "Disadvantaged" Students.* Princeton, NJ: Educational Testing Service.	This study evaluated the special services program 3 years into its implementation. Specifically, the study focused on whether the special services program was associated with improved student performance, satisfaction, perceptions, and aspirations.	The multi-phase study included: ■ An extensive literature review on the performance of disadvantaged students in higher education. ■ A census of postsecondary institutions to profile disadvantaged students and support services offered (1,766 out of 2,991 institutions participated). ■ A national sample of 120 institutions to collect information from college presidents and disadvantaged and nondisadvantaged students through mail questionnaires (8,213 students participated). ■ Of the 120 institutions, 60 were also tapped for peer interviews with disadvantaged students. ■ Site visits were conducted at 31 of the 120 institutions. ■ Disadvantaged students were defined according to program regulations: students from families within the national poverty classification or with a physical handicap.	Program services typically included counseling, tutoring, remedial course work, and ethnic identity activities.	The outcome measures considered included student progress, satisfaction, aspirations, and perceptions.	■ In 1971-72, approximately 14 percent of undergraduates were disadvantaged. ■ In 1971-72, between one-quarter to one-half of postsecondary institutions provided some kind of support service program. One-third of these programs were exclusively funded by the Department of Education. ■ Support services participants found the services helpful; however, no relationship was found between the availability and/or use of special services and success or satisfaction of disadvantaged students. ■ Race appeared to have a stronger influence on behavior and attitudes than poverty, physical handicap, or availability of support services. Previous academic performance, rather than availability or use of support services, was the strongest predictor of future academic performance. ■ The presence of special services appeared to result in a more favorable or accepting attitude toward disadvantaged students on campus.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Office of Inspector General. (1985). *Limited Review of the Special Programs for Disadvantaged Students* (Audit Control No. 04-30033). Washington, DC: U.S. Department of Education.	This study presented the results of an audit of TRIO programs and a limited review of TRIO headquarters. The audit covered the period July 1, 1976, to June 30, 1982.	The audit examined one or more TRIO programs at five postsecondary institutions. In addition, a limited review was made of TRIO headquarters in Washington, DC.	TRIO programs including SSDS.	The audit examined whether programs were being administered effectively, economically, and in accordance with program regulations.	■ Recordkeeping was not stressed by program officials. ■ Projects need to provide better documentation to verify student eligibility and to determine which services were provided to each participant. ■ The following recommendations were made: 1. Improve data documentation and maintenance of all required documentation. 2. Clarify what constitutes duplication. 3. Require institutional applicants to specify what additional services will be paid for by program resources. ■ Program officials outlined steps for better documentation and the elimination of duplication in response to these recommendations.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
Pinkston-McKee, R. (1990). *Student Support Services Program*. Washington, DC: American Association of State Colleges and Universities.	The report profiled the Student Support Services program at the Chicago State University.	The program served low-income, first-generation, and/or physically handicapped students. Although services concentrated on the freshman year, followup services were available for eligible continuing students.	Counseling and academic support services included instruction in writing, math, and study skills; personal counseling; academic advisement; tutoring; exposure to cultural and educational activities; career awareness activities; and activities designed to increase enrollment in graduate and professional school programs.	The outcome measure used was retention rates.	Freshman participants had higher 1-year, 2-year, and 3-year retention rates than all university freshmen.
Read, S. (1981). *TRIO/Special Services Program Evaluation. Final Report, 1980-81*. Minneapolis, MN: University of Minnesota.	This report described the TRIO/Special Services Program at the University of Minnesota and assessed the performance of participants during its first year of operation (the 1980-81 academic year).	Participants were identified according to low income, academic need, handicapped or minority status. During the 1980-81 academic year, 248 students used TRIO services. Educational outcomes of participants were compared to those of a control group. The control group consisted of 60 students that were randomly selected from freshmen who were low income and had not participated in the TRIO or other retention programs.	TRIO/special services program targeted freshmen and included four components: ■ The Integrated Course of Study: a group of courses that integrate basic skills development, academic subject matter, and seminars focused on career and academic and personal growth; ■ Counseling services; ■ Tutoring services; and ■ Summer institute for entering low-income freshmen (this component was not part of the evaluation).	Outcome measures examined GPA, the ratio of credit courses completed to courses attempted, retention rates for the academic year, performance on placement test, academic motivation, and growth in self-esteem.	Findings from student outcomes included the following: ■ Participants had GPAs comparable with the control group. ■ Participants had higher retention rates than the control group (84 percent compared with 68 percent). ■ Participants completed a larger proportion of their courses than the control group. ■ No statistically significant differences were found between the participant and control groups for gains in scores on the placement tests. ■ In general, students were highly satisfied with the TRIO program.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	Purpose	Target Group/Sample	Service/Treatment	Outcome Measures	Findings
Read, S. (1982). *TRIO/Special Services Program Evaluation. Final Report, 1981-82.* Minneapolis, MN: University of Minnesota.	This report described the TRIO/Special Services program at the University of Minnesota as administered during the 1981-82 academic year and provide a followup look at participants from the 1980-1981 academic year.	Approximately 250 students used the TRIO services during the 1981-82 academic year. The control group consisted of 57 students that were randomly selected from freshmen who were low income and had not participated in the TRIO program or other retention programs.	TRIO/special services program targeted freshmen and included four components: ▪ The Integrated Course of Study: a group of courses that integrate basic skills development, academic subject matter, and seminars focused on career and academic and personal growth; ▪ Counseling services; ▪ Tutoring services; and ▪ Summer institute for entering low-income freshmen (this component was not part of the evaluation).	First year outcome measures included GPA, retention rates for the academic year, ratio of credit courses completed to courses attempted, academic motivation, growth in self-esteem, and self-assessment of skills. Outcome measures for the followup group included retention rates, GPA, and number of credits completed.	The 1981-82 findings revealed the following: ▪ Participants had higher retention rates than the control group (81 percent compared to 72 percent). ▪ Participants earned higher GPAs than the control group. ▪ Participants completed a higher proportion of their classes than the control group. ▪ No differences were found between participants and the control group on other outcome measures. The followup study of 1980-81 participants showed the following: ▪ While a larger percentage of students who participated during 1980-81 returned for a second academic year than the control group, their performance during 1981-82 was no better than the control group in terms of GPA, retention through the second academic year, and the proportion of courses completed.

Table 4. TRIO/SDSS/SSS project evaluations (continued)

Study Name	**Purpose**	**Target Group/Sample**	**Service/Treatment**	**Outcome Measures**	**Findings**
U.S. General Accounting Office. (1982). *Report to the Chairman, Committee on Labor and Human Resources, U.S. Senate: Department of Education Uncertain About Effectiveness of its Special Services Program.* Washington, DC: Author.	This study reviewed the administration of the SSDS program.	Site visits were made to 11 special services projects. GAO randomly sampled 707 students, or 10 percent of the eligible participants at the 11 projects. Performance was examined during the 1977-78 to 1979-80 academic years.	SSDS services such as tutoring, counseling, and special academic classes.	The GAO reviewed: 1) ED's ability to manage the SSDS program; 2) Whether projects were meeting program goals; and 3) The progression of students in the program.	▪ There was little evidence to determine if the SSDS program was meeting its goals of increased retention and graduation rates: 1) The U.S. Department of Education (ED) did not specify that projects must set measurable objectives. 2) Site visits to projects (used to determine program compliance) were infrequent and limited in scope. 3) ED did not require project performance reports to include information on the academic status of participants, making it difficult to determine retention and graduation rates. Further, GAO found that performance reports were not always accurate. ▪ In response, ED rejected the claim that it was incapable of determining whether SSDS was achieving its goals. ED cited three program studies to support this position. GAO suggested, however, that these studies did not provide sufficient evidence to support ED's claim.

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Supplemental reports/studies

Study Name	**Purpose**	**Findings/Recommendations**
Academic Senate, California Community Colleges. (1990). *Standards for Accreditation.* Sacramento, CA: Author.	This report outlined accreditation standards for California community colleges that state "the basic characteristics of quality required of all accredited institutions." The standards were developed by the Accrediting Commission for Community and Junior Colleges.	The report listed several standards and describes the required supporting documentation for each standard. The standards applied to the following areas: ■ Institutional integrity; ■ Purpose, planning, and effectiveness; ■ Educational programs; ■ Student services and the cocurricular learning environment; ■ Faculty and staff; ■ Learning resources; ■ Physical resources; ■ Financial resources; and ■ Governance and administration. Specific topics discussed under the standard relating to student services included counseling services, admissions and records, coordination and administration, and comprehensiveness of services.
Arkfen, D.E. (1981). *A Lamp Beside the Academic Door: A Look at the New Student and His Needs.* ERIC ED 261 603.	The author cited research by Roueche, Maxwell, and Cross to support several recommendations regarding ways to meet the needs of underprepared students.	The author made the following recommendations: ■ Students must be identified for assistance early, at the time of admissions or orientation, using questionnaires or placement tests; ■ Students will need intensive counseling support; ■ Teachers should choose to participate in the program rather than being assigned to it; and ■ Teaching methods should include individualized programs and mastery of learning concepts from Bloom.
Association for the Study of Higher Education. (1988). *Uses of the College Student Experiences Questionnaire.* Presented at the 13th Annual Conference of ASHE, November 3-6, 1988, St. Louis, MO.	This paper described how four colleges have used the College Student Experiences Questionnaire (CSEQ). The CSEQ was administered to determine the extent to which undergraduates at 4-year institutions have used activities designed to improve learning and development during the school year. For example, the CSEQ procured data about student experiences with faculty and the library. In addition, it also collected information about student demographics and students' perceptions of the college environment.	The four colleges profiled used the CSEQ results in the following ways: ■ Ohio State University used the information as part of a self-study phase of an accreditation review; ■ Towson State University and Mary Washington College used the information as part of a statewide assessment and longitudinal study; and ■ The University of Denver used the survey to get a better sense of students' perceptions about the institution.

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Supplemental reports/studies (continued)

Study Name	**Purpose**	**Findings/Recommendations**
Astin, A. (1993). *What Matters in College: Four Critical years Revisited.* San Francisco, CA: Jossey-Boss Publishers.	The author used Bloom's concept of mastery learning to describe the functioning of a campus learning center. According to Bloom, given appropriate instruction and resources, adequate time, and perseverance almost all students can learn a specific skill.	Appropriate instruction included performing the following tasks: ■ Decide what skills are to be taught/learned; ■ Give a placement test; ■ Provide one-on-one tutoring; ■ Provide other resource materials (e.g., tapes and videos); ■ Provide other special programs (e.g., study sections and mini-courses); and ■ Conduct retesting.
Bonham, B.S. (1990). Research on Development Education: An Interview with James A. Kulik. *Journal of Developmental Education*, 13(3):16-18.	Although this article did not focus on effective instructional practices, Kulik cited the favorable evaluation record for individualized, mastery-oriented teaching methods.	■ A review of more than 100 separate evaluations of individualized, mastery-oriented teaching methods revealed that over 90 percent of the evaluations reported gains in student learning. ■ The individualized, mastery-oriented teaching approach included the following components: frequent formative quizzes on assignments, working with students to correct quiz errors and misunderstandings, and retesting students for mastery.

Supplemental reports/studies (continued)

Study Name	**Purpose**	**Findings/Recommendations**
Courtland, L. (1991). *Achieving Diversity: Issues in the Recruitment and Retention of Underrepresented Racial/Ethnic Students in Higher Education: A Review of the Literature.* Alexandria, VA: National Association of College Admissions Counselors.	This literature review examined issues related to the recruitment and retention of underrepresented students in higher education.	■ The review outlined the following practices to improve recruitment efforts: 1. Administrators should understand the decision-making process of underrepresented students in pursuing higher education and should recognize the importance of financial aid to these students. 2. Administrators should encourage college preparation programs and procedures, such as developing outreach programs and school-college partnerships. 3. College recruitment efforts should be supported with a strong commitment from administrators. 4. Administrators should examine alternative admission criteria for underrepresented students. 5. Colleges should support and expand financial aid. ■ The report made several suggestions concerning improved retention efforts, including: 1. Retention could be improved if retention efforts were more sensitive to students' perceptions of college, and if colleges developed more effective retention policies, programs, and procedures. 2. Effective institutional retention policies should have substantial institutional and financial support. 3. Effective programs that have shown some success include components such as easing the transition from secondary to postsecondary education, providing services that address preparation problems, promoting student campus involvement, improving the campus racial climate, and providing academic advising. 4. Programs should recognize differences in cognitive and noncognitive learning styles between underrepresented and majority students. 5. Effective procedures should encourage the rethinking of curricula to meet the needs of the underrepresented, the staffing of counseling centers with minorities, and the recruitment of minority faculty members.
Langer, P., Wilton, J., and Presley, J.B. (1987). *A Longitudinal Study of Student Retention at an Urban Commuter University.* Boston, MA: Institutional Research and Planning, University of Massachusetts, Boston.	This study examined the retention rates of over 29,000 undergraduate degree seeking students enrolled at the University of Massachusetts at Boston between the fall of 1981 and 1987.	■ Twenty percent of the college freshmen attending the institution graduated within 5 years. ■ Overall, about 30 percent of the college freshmen eventually graduated. When transfer students were included, this figure jumped to 37 percent. ■ GPA had the strongest influence on retention. ■ Nontraditional students had lower retention rates than traditional students. ■ Freshman retention rates increased during the last 3 years.

Supplemental reports/studies (continued)

Study Name	Purpose	Findings/Recommendations
Morgan, B.E., and Weckmueller, B.L. (Fall 1991). Staff Development for the 1990s. *College and University*.	Drawing on positive management experiences in the corporate sector, this article described efforts by the University of Wisconsin - Milwaukee's Department of Enrollment Services to improve staff development.	The article identified the following factors, more often found in the business/corporate world than in an university environment, that characterize a good work environment: ■ Entrepreneurial rather than bureaucratic decision making; ■ Mutual trust and respect between employer and employees; ■ A friendly and fun environment; and ■ Lifelong learning opportunities. Using this information, the Department of Enrollment Services instituted on-campus staff development workshops to increase effectiveness and productivity. The workshop topics were often selected by staff members.
Richardson, R.C. (1990). *Responding to Student Diversity: A Community College Perspective*. Denver, CO: Educational Commission of the States.	Preparation is the most important challenge community colleges currently confront. It cannot be neutralized by redefining outcomes so that underprepared students can achieve them or by excluding students who are assessed as extremely high risk. Changing the learning environment, especially that part determined by student interaction with faculty members, is the only alternative that offers much hope for long-term improvement. This article discussed deficiency models and achievement models as they relate to modifying the learning environments.	■ The prevailing community college approach to student preparation issues involved a deficiency model where remediation is emphasized as the dominant strategy for bringing everyone to minimum standards. Also needed was an achievement model that challenges faculty to design an environment where diversity is valued and individuals are inspired to build on strengths to attain maximum potential. ■ The task of implementing achievement models in institutions historically committed to access is a task of managing culture. While culture management is more time-consuming and difficult than the introduction of technology, it is the only approach through which the faculty who control the nature of the learning environment and its impact on students can be influenced to augment deficiency views and practices.
Richardson, R.C. (1989). *Institutional Climate and Minority Achievement*. Denver, CO: Educational Commission of the States.	This paper described two approaches that have been used to achieve similar outcomes for students who begin from significantly different (academic) starting points. The first approach involved developing special-access programs to provide a parallel track to the same objective. The second option was to creating learning environments that support achievement by more diversely prepared student populations. Examples included classes with an option of additional hours of classroom instruction or discipline-base learning laboratories.	■ The costs associated with maintaining parallel track programs make it unreasonable to construct them in every discipline and specialization. ■ The alternative approach is less expensive but relies on changes in the values and practices of existing faculty members. Changing the values that govern facility behavior requires the management of organizational culture. ■ Institutions can free themselves from the costs of supporting parallel programs by managing their cultures to create an appropriate balance between diversity and student achievement.

Supplemental reports/studies (continued)

Study Name	Purpose	Findings/Recommendations
Richardson, R.C. (1989). *Serving More Diverse Students: A Contextual View:* Denver, CO: Educational Commission of the States.	This paper proposed a conceptual scheme for dealing with the complexities of analyzing the impact of institutional and state policies on minority enrollment and graduation. The author considered the question, should policy aim for quality of educational opportunity or fair outcomes. "Fair process" was defined as those admission and enrollment policies that are designed to ensure access to higher education--that is, ensuring equal opportunity in postsecondary education. Such processes included open enrollment and need based student aid. "Fair outcomes," on the other hand, referred to proportional representation of minorities in enrollment and graduation rates for minorities that are comparable to Anglos. This discussion was further complicated by the prevailing notion among faculty and administration that an institution providing good access will have poor educational quality and that an institution concerned with quality will restrict access.	■ The author made the following suggestions regarding the development of state and institutional policies: 1. It is necessary to consider both quality and diversity when developing any policy change. 2. It is important for all institutions, regardless of mission, to accept responsibility for both expanding diversity and strengthening achievement. 3. It is necessary to improve student-institutional fit by changing institutional environments as well as programs. 4. Attempts to prepare students for higher education must begin earlier and involve much greater inter-institutional cooperation. ■ The author also developed measures of fair outcomes, including: 1. Estimating the differences between majority and minority enrollment and graduation rates that can be explained by the variables over which colleges and universities exercise some control. 2. A method for tracking progress in achieving enrollment and graduation objectives across states and institutions. A preliminary examination of data from 1980 and 1984 indicated that many states appeared to have better access and lower achievement and vice versa.

Supplemental reports/studies (continued)

Study Name	Purpose	Findings/Recommendations
Richardson, R.C. (1990). *The State Role in Promoting Equity*. Denver, CO: Educational Commission of the States.	In 1987 the State Higher Education Executive Officers (SHEEO) called for the states to collectively shape institutional policy toward minority access and achievement in such areas as planning and reporting, assessing students for admission, increasing diversity among professional ranks, and changing the institutional environment. This article included a three-step process to be used by institutions to improve educational opportunities and outcomes for minorities, a discussion focused on defining and assessing state outcomes, and ways to achieve equity through state actions.	■ Higher Education and Change: Most institutions are resistant to change mandated by the state because they believe their behavior should be based on their mission statement. States should encourage institutions to move through the following three stages to improve educational opportunities and outcomes for minorities: 1. Stage 1: Institutions remove barriers to participation through the adoption of recruiting strategies and admissions practices that ensure entering classes more accurately reflect the composition of the population from which they are drawn. 2. Stage 2: Institutions improve retention by developing special programs and support services. These interventions are aimed at expanding the pool of qualified minority students and assisting the marginally under-prepared to find ways of adapting to institutional expectations. 3. Stage 3: Institutions develop academic programs more reflective of a multicultural society, use assessment to determine preparation gaps and learning outcomes, and encourage comparable achievement by more diversely prepared learners. Faculty must understand that it is unrealistic and counterproductive to expect students to do all of the changing and accept the responsibility for helping more diverse students learn. ■ Defining and Assessing State Outcomes: Two separate indicators are needed to measure state or institutional progress toward equity. The first is an estimate of the differences between majority and minority participation rates. The second is an estimate of differences in graduation rates attributable to the effects of race and ethnicity. From 1980 to 1986, 8 of the 10 states studied recorded declines in the equity score for graduation. Hispanic equity scores for graduation improved in 8 of the 10 states. ■ Achieving Equity Through State Actions: Initially, someone to whom institutions listen must say that equity is important and attainable. Once equity has been defined as a priority, a plan must be developed by all agents upon whose efforts that plan's success will depend. The plan must provide a framework within which governors, legislators, board members, and institutional staffs can cooperate effectively. The ultimate goal is for colleges and universities to admit and graduate more minority students without compromising standards in order to satisfy state and national requirements for a trained workforce and a functioning society.

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Supplemental reports/studies (continued)

Study Name	Purpose	Findings/Recommendations
Sergent, M.T., Carter, R.T., Sedlacek, W.E., and Scales, W.R. (1988). *Services offered to Disabled Students in Higher Education: A Five Year National Survey. Research Report 4-88.* College Park, MD: University of Maryland.	Data on students were obtained from schools affiliated with the Association on Handicapped Student Service Programs in Higher Education. The data were examined separately for large institutions (enrollment of 10,000 or more) and small institutions (enrollment of 10,000 or less). The data reflect information on those students registered with each school's disabled student services (DSS) office.	■ Both large and small schools had a decrease in the number of mobility impaired students over the 5 years examined. ■ Both large and small schools had an increase in the number of learning disabled students over the 5 years examined. ■ There was little difference between large and small institutions in the types of services offered to disabled students. ■ The most common services for disabled students were counseling and orientation, training for faculty and staff, and academic support services (e.g., interpreters, note taking assistance, priority registration, and test and quiz administration). ■ The most common services for learning disabled students were test and quiz administration, ordering of taped texts, and counseling services.
SHEEO Task Force on Achieving National Goals. (1991). *Higher Educational and School Reform: Creating the Partnership.* Denver, CO: State Higher Education Executive Officers.	This report discussed higher education's role in accelerating school reform to help meet the national education goals.	The report suggested that each state develop a "plan of action" for school-college partnerships. These plans should include the following goals: ■ "Establish high learning expectations; ■ Improve teacher preparation; ■ Improve continuing education for teachers; ■ Provide feedback on performance; ■ Intervene early to increase aspirations and preparation for college; ■ Share facilities, technology, and faculties; ■ Create an integrated curriculum in math, science, and other fields; and ■ Create new structures and support for planning and collaboration."
South Carolina University. (1994). *The Freshman Year Experience Special Focus Conference on Urban Campuses: Conference Program and Proceedings.* Charleston, SC.	This report included abstracts of planned presentations for a 1994 conference on programs "designed to improve the freshman year experience," with particular attention given to programs at urban institutions.	■ Only 2 of the 24 planned presentations were directly related to support services for disadvantaged students. ■ Other topics covered by the abstracts included services for adult/nontraditional students, promoting critical thinking, employment opportunities, student-faculty relationships, and cost-effectiveness issues.

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APPENDIX D

STUDY NONRESPONSE

STUDY NONRESPONSE

Appendix table D-1 gives the response rates for each of the major data collections of the study. The overall rates ranged from 86 percent on the surveys to 97 percent on the transcripts. Rates were lowest for community college study participants. Survey response was slightly higher for SSS participants than for comparison group participants. These survey response rates were obtained only after considerable telephone followup and use of extensive tracing procedures including use of professional tracing organizations. It is considerably higher than previous SSS evaluation studies in which the response rates were under 50 percent.

Table D-1
Response rates for SSS survey components

Survey component	Total	SSS status		Institution type		
		Participant	Comparison group	2-year	4-year	Doctoral
Total number eligible	5,865	2,930	2,935	1,418	3,228	1,219
Response rates (percent)						
First-year survey	86	90	83	81	89	86
Service records	86	86	--	88	82	95
First-year transcripts	97	97	98	97	98	98
Followup survey	86	87	84	79	88	87
Follow transcripts	97	97	96	97	96	97
Transcripts from additional schools						
Number eligible	1,645	772	873	311	936	398
Percent	93	94	93	93	94	94

Complete service records were attained for 86 percent of the SSS participants. Those SSS participants for whom we did not obtain complete service records were largely from institutions that served more than 135 freshmen. At the start of the study, sites were asked to estimate the number of freshmen they would be serving. Based on these estimates, sampling rates were set. Those estimating they served less than 135 freshmen were instructed to include all freshmen in their sample. Those estimating they served more than 135 were instructed to randomly sample based on Social Security digits. In most cases actual sampling was done by the study office from complete lists of participants.

During the course of the first year data collection, it became apparent that the target sample sizes would not be reached in a number of sites. For this reason a decision was made to include all freshmen at all sites. A number of freshmen participants who had not been originally sampled were then added to the sample. However, it was not possible at this point to obtain compete service records for everyone in this group. Transcripts and surveys were obtained from this group and in every other way they were treated as the original sampled group. Lack of service records reduces the number of cases that can be used in some of the analyses; however, there should be no bias associated with this nonresponse.

Nonresponse to the Baseline and Followup Questionnaires

The largest potential for nonresponse bias is from the nonresponse to the survey questionnaires. Overall, 86 percent of the eligible students responded to each of the two survey questionnaires. This section examines whether some types of students were more likely to respond to the survey than other students, and thus whether the data might be biased. Data are based on student transcripts and on the freshman file information obtained from the institutions.

Baseline questionnaire. By several measures, nonrespondents were more economically and educationally disadvantaged than respondents. They had lower average family incomes (a mean of $19,900 versus $23,900). They also generally showed weaker academic preparation and performance, including in their high school class ranks (43.1 versus 38.0), high school GPAs (2.4 versus 2.6), first-year college GPAs (2.0 versus 2.3), total credits earned in the first year of college (16.8 versus 21.5), and percentile on college admissions tests (35.0 versus 39.7).

There were several other differences between respondents and nonrespondents. Nonrespondents tended to be slightly older on average (21.5 versus 20.5). They were more likely to be at 2-year institutions (33 percent versus 23 percent) and less likely to be at 4-year institutions (46 percent versus 56 percent). Nonrespondents were also more likely to be in the comparison group than were respondents (63 percent versus 48 percent). Among those students who participated in SSS, nonrespondents showed lower levels of participation than respondents. They participated for fewer months (4.6 versus 6.2), had fewer total service contacts (24.7 versus 59.9), and received fewer total hours of services (20.1 versus 34.2).

Followup survey. The patterns of response were much the same for the followup survey as for the baseline questionnaire. Nonrespondents again tended to be more economically and educationally disadvantaged. On average, their family incomes were lower ($19,100 versus $24,100), and they had lower high school class ranks (47.3 versus 37.4), high school GPAs (2.4 versus 2.6), first-year college GPAs (2.1 versus 2.3), total credits earned in the first year of college (16.6 versus 21.6), percentile on college admissions tests (33.6 versus 39.8), and lower SAT scores (349.7 versus 376.1 on the verbal test; 383.1 versus 415.1 on the mathematics test).

On other dimensions, nonrespondents again showed the same patterns as for the baseline questionnaire. They were older on average (21.6 versus 20.5). Nonrespondents were more likely to be at 2-year institutions (35 percent versus 22 percent), and less likely to be at 4-year institutions (46 percent versus 57 percent). Among SSS participants, nonrespondents participated for fewer months in SSS (5.0 versus 6.2), had fewer total service contacts (43.5 versus 58.4), and fewer total hours of service (24.4 versus 34.1). Unlike the baseline questionnaire, there was only a small difference in terms of whether they were SSS participants or members of the comparison group: 55 percent of nonrespondents were in the comparison group, compared with 49 percent of respondents.

Summary. The direction of the differences in response rates are consistent with previous literature. Typically, disadvantaged students are less likely to respond, and typically participants in a program such as SSS might be expected to respond when asked to evaluate that program.

In sum, modest biases did appear based on the differences in response rates. Unless the analysis corrects for the level of participation in SSS, it is likely to somewhat overstate the average effect of SSS. The measures that form the core of the outcomes analysis are based on the number of hours of each service received, and thus they do account for differences in participation. For this reason, they help to minimize the importance of questionnaire nonresponse. However, the estimates of the impact of SSS are based on the proportions of students receiving various levels of services, so they tend to modestly overstate the overall impact of SSS. However, because the response rate was relatively high, the overall statistics are not likely to be greatly different from what might have appeared with full participation.

APPENDIX E

ADDITIONAL TABLES

Table E-1. Percent distribution of the race/ethnicity of Student Support Services (SSS) freshman participants, non-SSS freshmen at sampled institutions, and all undergraduates: 1991-92

Participant	Race/ethnicity				
	Native American	African-American	Hispanic	Asian or Pacific Islander	White
SSS freshman participants					
Total	2%	31%	22%	4%	41%
2-year	2	45	14	2	36
4-year	2	25	27	4	42
Doctoral	4	34	11	6	45
Non-SSS freshmen at sampled institutions	1	13	8	5	74
2-year	1	13	7	4	75
4-year	1	12	9	6	73
All undergraduate (IPEDS data)					
Total	0.8	9	6	4	80
2-year	1.0	10	8	4	77
4-year	0.6	9	4	4	82

NOTE: Because of rounding, percents may not add to 100.

SOURCE: SSS data: U.S. Department of Education, Policy and Evaluation Service, National Study of Student Support Services, *Baseline Survey Data and Freshman File Data, 1991-92*. Undergraduate data: U.S. Department of Education, National Center for Education Statistics, "Fall Enrollment in Colleges and Universities," and Integrated Postsecondary Education Data System (IPEDS), Fall Enrollment Survey.

E-2. Percent of Student Support Services (SSS) freshmen who used various sources to finance their educational expenses for 1991-92

Source	All institutions	2-year institutions	4-year institutions	Doctoral institutions
Parents, other relatives, or friends	50%	35%	52%	60%
Spouse	7	10	7	2
Personal savings	34	23	33	47
Job during school year	38	36	38	39
Summer job	34	19	35	48
Institutional grants or scholarships	50	44	50	57
Other grants/scholarships	40	31	42	42
Government loans	28	16	30	39
Other loans	16	7	17	22

SOURCE: U.S. Department of Education, Policy and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*.

Table E-3. Highest degree planned by Student Support Services (SSS) freshmen and all freshmen at their current college and anywhere: 1991-92

Highest degree planned	SSS freshmen				All freshmen (CIRP data)			
	All institutions	2-year institutions	4-year institutions	Doctoral institutions	All institutions	2-year institutions	4-year institutions	Doctoral institutions
Current college								
None	8%	11%	8%	5%	4%	8%	3%	1%
Vocational certificate	2	5	*	1	3	6	1	*
Associate's	24	69	12	4	26	67	3	1
Bachelor's	51	8	65	61	49	14	73	63
Master's	12	5	12	21	13	2	16	24
Doctorate	4	1	3	8	5	3	5	11
Any college								
None	3	6	3	1	1	2	1	1
Vocational certificate	1	2	*	1	2	5	*	*
Associate's	5	13	4	1	7	20	1	*
Bachelor's	27	36	27	15	28	33	28	21
Master's	36	24	38	45	36	27	40	40
Doctorate	27	20	27	37	26	13	29	38

*Less than .5 percent.

NOTE: Because of rounding, percents may not add to 100.

SOURCE: SSS participant data: U.S. Department of Education, Policy and Evaluation Service, National Study of Student Support Services (SSS), *Baseline Survey, 1991-92*. All freshmen data: Cooperative Institutional Research Program, Higher Education Research Institute, University of California and American Council on Education, *The American Freshman: National Norms for Fall 1991*.

APPENDIX F:

PERFORMANCE REPORTING FORM

UNITED STATES DEPARTMENT OF EDUCATION
WASHINGTON, D.C. 20202-______

AUG 12 1994

Dear Student Support Services Project Director:

Enclosed is a copy of the Annual Performance Report form for the Student Support Services Program to be used for program year 1993-94. The due date for submission of the completed form to the Department of Education is 90 days from the end of the fiscal year 1993 budget period. An original and two copies of the report should be mailed to the Department at the address noted below.

U.S. Department of Education
Division of Student Services
400 Maryland Avenue, S.W.
FOB-6, Room 5065
Washington, D.C. 20202-5249

For additional information or concerns you may have which are specific to your individual project, please contact your assigned Program Officer on (202) 708-4804.

Sincerely,

Richard T. Sonnergren
Director
Division of Student Services

Enclosure

Our mission is to ensure equal access to education and to promote educational excellence throughout the Nation.

OMB Approval No: 1840-0525
Expiration Date: 03/31/95

ANNUAL PERFORMANCE REPORT

(Authority: Public Law 102-325, as amended)

Public reporting burden for this collection of information is estimated to average 4.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, Information Management and Compliance Division, Washington, DC 20202-4661; and to the Office of Management and Budget, Paperwork Reduction Project 1840-0525, Washington, DC 20503.

U.S. Department of Education
Student Support Services
Washington, DC 20202

SECTION I

Project Identification, Certification, and Warning

A. IDENTIFICATION

1. Project Director: ______________________
2. Name of Institution: ______________________
3. Address: ______________________
(Street)
____
(City) (State) (Zip)
4. Telephone Number: (   ) ______________
5. Grant Number: ______________________
6. Report Period: __/__/__ to __/__/__
Mo / Day /Yr   Mo / Day /Yr
7. Funding Cycle Year: 1993-94 _____ 1994-95 _____ 1995-96 _____

B. CERTIFICATION:

(By Program Director and Institutional Representative) I certify that the information reported herein is accurate, complete, and readily verifiable to the best of my knowledge.

____
Name of Project Director
(Print)

____
Name of Certifying Official
(Print)

____
Signature   Date

____
Signature   Date

C. WARNING

Further monies or other benefits may be withheld under this program unless this report is completed and filed as required by existing law (20 U.S.C. 1231a) and regulations (34 CFR 74.82 and 75.720).

SECTION II: INFORMATION ON PROJECT PARTICIPANTS

A. TOTAL NUMBER OF PARTICIPANTS ASSISTED DURING PERIOD ______

B. NUMBER AND TYPES OF ELIGIBLE STUDENTS ______

Types of Participants

1. Low income and first generation college students ______
2. Individuals with disabilities ______
3. Low-income students only ______
4. First generation college students ______
5. Disabled and low-income students ______
6. **TOTAL** (Sum of lines B1 through B5 must agree with total in A) ______
   (Do not count a student MORE THAN ONCE. A list of all participants receiving services during this period must be attached.)

C. PARTICIPANT DISTRIBUTION BY ETHNIC BACKGROUND

ETHNIC BACKGROUND

______

1. American Indian/Alaskan Native ______
2. Asian/Pacific Islanders ______
3. African-American ______
4. Hispanic ______
5. White (Other than Hispanic) ______
6. Other ______
7. **TOTAL** (sum of lines C1 through C6 must agree with total in A)

D. PARTICIPANT DISTRIBUTION BY GENDER

1. Male ______
2. Female ______
3. **TOTAL** (Sum of lines D1 and D2 must agree with total in A) ______

E. NUMBER OF PARTICIPANTS REQUIRING FINANCIAL ASSISTANCE

1. Participants reported in A above who require financial assistance to meet their full financial need. ______
2. Participants reported in A above who were *offered* financial assistance to meet their full financial need. ______
   (A list of all participants requiring financial aid during this period must be attached)

SECTION III - PROVISION OF SERVICES

A. INSTRUCTIONAL SERVICES	NUMBER OF PARTICIPANTS	
	FOR INSTITUTIONAL CREDIT	FOR ACADEMIC SUPPORT
Reading	________	________
Writing	________	________
Study Skills	________	________
Mathematics	________	________
English	________	________
English Proficiency	________	________
Other (Specify)	________	________

B. COUNSELING	NUMBER OF PARTICIPANTS
Personal Counseling	________
Peer Counseling	________
Financial Aid Counseling, and Assistance (forms completion, referrals etc.)	________
Academic Counseling and Assistance	________
Career Counseling	________
Graduate School Counseling	________

C. TUTORIAL AND OTHER EDUCATIONAL ASSISTANCE	NUMBER OF PARTICIPANTS
Tutorial Assistance	________
Cultural and Academic Enrichment Activity	________

SECTION IV - PROJECT PERFORMANCE OUTCOMES

	CURRENT PARTICIPANTS	PRIOR YEAR(S) PARTICIPANTS
A. STUDENTS ENROLLED AT THE END OF THE REPORT PERIOD		
1. In good academic standing (institutional requirements)		
2. Not in good academic standing (institutional requirements)		
B. STUDENTS WHO WITHDREW OR WERE DISMISSED FROM THE INSTITUTION DURING THE REPORT PERIOD		
1. Dismissed for academic reasons		
2. Dismissed for other than academic reasons		
3. Withdrew for financial reasons		
4. Withdrew for health reasons		
5. Withdrew for academic reasons		
6. Withdrew for other personal reasons		
C. STUDENTS WHO GRADUATED OR TRANSFERRED		
1. Transferred to another post-secondary institution		
2. Graduated from the institution		
D. STUDENTS ENROLLED IN GRADUATE DEGREE PROGRAMS		
1. Students enrolled at the grantee institution		
2. Students enrolled at another institution		
E. STUDENTS WHOSE STATUS IS UNKNOWN TO THE PROJECT		
TOTAL (sum of items A, B, C, and E)		

TO BE COMPLETED BY 2-YEAR INSTITUTIONS ONLY

F. NUMBER OF STUDENTS WHO COMPLETED A 2-YEAR PROGRAM AND TRANSFERRED TO A 4-YEAR PROGRAM		

SECTION V - SUMMARY OF OTHER PROJECT ACCOMPLISHMENTS

State briefly project goals and objectives, stated in the current proposal which are not covered in previous sections of this report and briefly describe the project's accomplishments during this report period.

GOAL/OBJECTIVE	ACCOMPLISHMENT

PERFORMANCE REPORT FORM (ED FORM E 1231)

SECTION I: PROGRAM IDENTIFICATION, CERTIFICATION, AND WARNING

SUBSECTION A - IDENTIFICATION

1. The project director is the person to be contacted for further information.
2. Self explanatory
3. Self explanatory
4. This should be the telephone number of the project director.
5. This is the identifying number from the grant award document (item #4).
6. This corresponds to the budget period (sometimes referred to as the grant period and may be found in item #5 of the grant award document).
7. This will identify the appropriate year of the funding cycle and may also be found in item #5 of the grant award document.

SUBSECTION B - CERTIFICATION

The project director is the individual responsible for the day to day administration of the project.

The certifying official is the individual (successor or designee) who signed the grant application on behalf of the institution.

SECTION II: INFORMATION ON PROJECT PARTICIPANTS

This section provides information on the total number of persons who have been enrolled or re-enrolled in the project during the report period and have received documented services during the report period.

E1. This is the total number of persons enrolled in the project that required financial assistance.

E2. This is an indication of the number of students reported in A1 who were offered sufficient financial assistance to meet their financial need.

SUBSECTION B - ELIGIBILITY CRITERIA

Student Support Services project participation requirements prescribe that an individual must, at the time of initial selection, be a "low-income individual," a "first-generation college student," or "an individual with disabilities." These terms are defined in program regulations. Two-thirds of a project's participants must be qualified as both low-income and also first-generation or be an individual with disabilities; the remaining one-third can be either low-income, first-generation, an individual with disabilities or a combination. At least one third of the individuals with disabilities must also be low-income individuals. Students may be counted only once in this breakout. The total reported must agree with the number in "A" above.

The lists requested under Section II B and E may be combined and included as Attachment A to this report. The list must include all participants assisted during this period. A student may not be counted more than once. The list must include for each student: name; date of acceptance into the project; the basis for acceptance--academic need, low-income, first-generation, disabled; the level of financial aid needed; and the amount of aid offered.

SUBSECTION C- ETHNIC BACKGROUND

This data is not mandatory but it is extremely helpful in assisting the Department in reporting on the ethnic characteristics of participants served by the program.

SUBSECTION D - DISTRIBUTION BY GENDER

Same comments as in Subsection C.

SECTION III: PROVISION OF SERVICES

This section is designed to obtain a profile of the number of participants who have received the various services authorized under the program.

Instructional Services fall into two categories--the instruction that is provided by SSS programs for institutional credit and the instruction provided for students as a part of the academic support services offered by the project.

Counseling Services may be provided for students in an array of areas. This section provides a breakdown of the project focus areas.

Tutorial and Other Educational Assistance data may give an indication of the number of students who receive tutorial and/or other educational assistance from the project.

SECTION IV: PROJECT PERFORMANCE OUTCOMES

In this section projects are asked to report on the status of "current participants," i.e., those participants who have received project services during the current year ; and "Prior Year(s) Participants," i.e., those who received services in the previous five (5) years who are not currentiv receiving SSS support services but were still enrolled at the grantee institution during the report period.

Subsection A - This section requires a reporting of the academic performance of both current and prior year project participants still on the institutional rolls at the end of the academic year. "Good" or "not good" academic standing is that which has been defined by the institution and covers all students. Example: above 2.0 cumulative grade point average could constitute good standing; below a 2.0 average could constitute conditional or probationary status, or "not in good academic standing."

Subsection B - In this section, report the number of current year participants and prior year participants who have been dismissed or who had to withdraw from the institution.

Subsection C - In this section, report the number of current year participants and prior year participants who left the institution during the report period.

Subsection D - In this section, report the number of current year participants and prior year participants who graduated from the institution's four-year program and continued into a graduate degree program at the grantee or other institution.

Subsection E - This section is self-explanatory.

Total - The total obtained in the Current Participants column should equal the total number of participants reported in Section II A.

Subsection F - This section should only be completed by two-year junior or community colleges or technical schools.

SECTION V: SUMMARY OF OTHER PROJECT ACCOMPLISHMENTS

Section III and IV address the general "process" and "outcome" objectives common to all projects. This section however, is designed to enable projects to report on the more unique goals or objectives to which a project has devoted resources during the report period. For example projects which have set specific and measurable objectives in writing, math, reading or other skill development areas should report such results in this section.

This section must also include a statement to the effect that the institution has fulfilled its assurance to offer financial assistance to meet the full financial need of students participating in the project or to provide an explanation for less than successful performance in this area.